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EDUCATION

VOLUME 65 No. 5

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Conservation as a Post-War Problem
By OTIS W. FREEMAN

A MAGAZINE DEVOTED *to the* SCIENCE, ART, PHILOSOPHY *and* LITERATURE *of* EDUCATION

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DEVOTED TO THE SCIENCE, ART, PHILOSOPHY AND LITERATURE OF EDUCATION

VOL. 65 JANUARY 1945 NO. 5

GEOGRAPHY NUMBER

OTIS W. FREEMAN, *Editor*
Indiana University
Bloomington, Indiana

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EDUCATION

Vol. 65 JANUARY 1945 No. 5

Foreword

By OTIS W. FREEMAN

Geography Editor.

IN this special geography number of "Education," an effort was made by the editor in charge to diversify the contributions in order to illustrate various ramifications of the subject. Some of the papers are of broad import like Dr. Stephen S. Visher's article on storms. In contrast is the detailed study of Valparaiso, Indiana, by Dr. Alfred H. Meyer on "A Geographic Study in Urban Civilian Defense." Both these papers as well as several others, are of practical importance to the progress of the war. Meyer's paper shows the desirability of planning and mapping for civilian defense, fortunately a problem that did not develop in the United States but might have done so. Visher's paper on storms is of current interest, as the weather associated with lows and thunderstorms can exert powerful effects on land, sea and amphibious operations. Witness the cloud cover and calm sea at Dunkerque, the unfavorable sea and sky conditions following our landings in Normandy, and the difficulties with heavy rainfall from tropical cyclones at Leyte.

In "Impacts of the War on the Pacific Northwest," Dr. R. M. Shaw has contributed a paper filled with examples of the industrial development and shifts of population that have occurred in the upper left hand corner of our country. Dr. Sigismond deR Diettrich, for long a professor of geography at the University of Florida, follows with an historical, economic and geographic description of Florida that shows how geography has influenced the development of the state.

More than half of the contributions are connected with problems of education and defense during the war and to post-war planning and problems. Professor Hoyt Lemons introduces this group of papers with, "The Role of Geography in Post-War Education," that urges that better trained geography teachers be given more time and opportunity for the teaching of geography in the courses of study adopted for our schools. This is followed by a description of "Area-Language Training: an Army Experiment," by Professor J. Sullivan Gibson who taught army men under this program. Dr. H. F. Raup describes "The United States Board of Geographic Names," whose work has been much expanded during the war. In "Ask the Geographer," Grant E. Finch points out numerous ways by which geography

can be of service to the public. Professor Thomas Barton offers some concrete suggestions regarding the use of globes at the primary, intermediate and high school level in his contribution. In "Conservation: a Postwar Problem," Dr. Freeman calls attention to certain outstanding conservation problems that have been intensified by our war effort.

The geographical distribution of the ten authors is as widespread as the subjects of the papers. Four are residents of the Midwest, two are from the Pacific Northwest, two from Washington, D. C., one from the South and one from New England.

The writer hopes that educators will find this special number both interesting and of practical use, and that it may help to show the broad scope of geography and the many ways in which the subject can be of use to the American Public.

Iceland on June 17, 1944, declared itself a republic and free of the kingdom of Denmark. The island nation claims the world's oldest parliament, called the Althing, established in 930 A. D. Iceland covers 39,700 square miles, slightly larger than Indiana, and has 120,000 inhabitants, about the same as Fort Wayne. American soldiers are now stationed in Iceland guarding airports and naval bases. Fishing is a leading industry in Iceland.

Some Human Relationships *to* Storms

By STEPHEN S. VISHER
Professor of Geography, Indiana University
Fellow, Royal and American Meteorological Societies

WHEN storms are mentioned, we think of the disruption of plans and of destruction by the wind, hard rain, lightning, hail or snow. Repeatedly throughout our lives, and also throughout all history, storms have interfered with man's plans. They introduce many complications, forcing us to suffer, unless we are successful in making effective adjustments. Thus they commonly stimulate human activity — discourage our continuing "in a rut." Storms are also highly significant as inducers of rainfall, producing a vast share of the world's rainfall.

As civilization advances, man learns how to protect himself from some of the damage done by storms, and comes to appreciate that storms have favorable as well as unfavorable consequences, but they have by no means been "conquered." Indeed storms have had augmented significance in recent years, with the development of aviation and with accelerated commerce and travel and with increased wealth in exposed places. Radio transmission is also affected by storms, even distant ones. All storms are associated with local differences in atmospheric temperature and with the whirling circulation of the atmosphere, induced in part by the earth's rapid rotation.

Wind storms are whirling masses of air which range in size from tiny dust whirlwinds which may be only a few yards across, to vast lows many hundreds of miles across. Intermediate sizes are waterspouts, (commonly a few yards or rods across), tornadoes (commonly less than a 1000 feet across), and tropical cyclones (commonly 100-400 miles across.) It is not appropriate here to explain the meteorological conditions under which these several types develop or to describe their characteristics in detail, but some knowledge as to their general features and consequences and their distribution over the world, clearly, is desirable.

Thunderstorms

Most thunderstorms are minor, though important, eddy features of the larger cyclonic disturbances. Although they are predominantly convectional, detailed studies have proven that air movement sufficiently intense to cause a thunderstorm almost never occurs except where the air is affected by at least a feeble cyclonic disturbance.

The thunderstorm is the world's most common type of storm, with a world total of about 40,000 per average day. They are most frequent in the rainy tropics, where each locality generally has, throughout most of the year, one or more a day. They are common in summer in most of the United

States, most localities having an average of one or two a week.

Most thunderstorms are only a few dozen miles across and as they commonly do not live to travel far, they affect only a relatively small area. Their average local duration is only an hour or two. Generally in the Westerly Wind Belts they move in an easterly direction, while in the Trade Wind Belts, they commonly travel westward. Their rate of average progress is slow near the equator, increasing to 10-30 miles an hour in midlatitudes.

Thunderstorms are significant in several respects. They are a major source of rainfall, they cause a sharp drop in temperature, they commonly have at least a little strong wind; their most distinctive feature is thunder, induced by lightning. Their cloud effects are noteworthy. They often yield hail as well as rain. Altogether, they are perhaps the most impressive atmospheric phenomenon commonly seen, highly useful in the aggregate, but locally often seriously harmful. The good they do, aside from the rain which often is highly welcome, includes the invigorating drop in temperature, the awe-inspiring display of cloud, lightning and wind, the generally stimulated effect of the dramatic change of weather. The harm they do includes the squall wind, just before the rain falls. This gust often is violent enough to do considerable damage. The annual average property loss from "windstorms not tornadoes" in the United States is about $200,000,000. Much of this loss is due to thunderstorm squalls. The rain often falls torrentially, with the result that a large share of that which falls upon sloping ground runs away. Much of the soil erosion of our fields is due to thunderstorm rain. "Cloudbursts" not only cause erosion but they sometimes produce locally harmful floods. The lightning, incidental to thunderstorms, affords a spectacular display of usually harmless fireworks, but also often does damage. Each average year more than five hundred people are killed by lightning in the United States. Many thousand livestock are also killed. Fires started by lightning annually destroy many million dollars worth of buildings and crops. Lightning starts many forest fires, some of which cause enormous losses. The lightning of thunderstorms does good as well as harm. Every flash combines some atmospheric nitrogen and oxygen forming ammonia, which when carried into the soil by the rain, adds fertility. This ammonia is an important source of increased fertility in the regions where thunderstorms are common.

The hail which falls in many thunderstorms is a convincing proof that the air is cold overhead even in hot weather. It also proves that the updrafts of air into the imposing thunderhead are strong. The hail does much damage in various midlatitude regions and on tropical plateaus. In the United States the annual property loss reaches large figures. For example, detailed Federal estimates are that hail normally reduces the wheat harvest by some 15 million bushels, the oats harvest as much, and the corn harvest by some 24 million bushels. Considerable damage is also done to fruit, greenhouses and chickens. Each year several people die in the United States as a consequence of hail bruises and annually some hundreds die thus in Europe, Asia and on the plateaus of Africa.

Thunderstorms are most numerous in the doldrums or wet tropics, that is the region near the Equator which receives rain throughout most of the year. Many severe thunderstorms occur in Brazil, in the Congo basin of Africa, and in the East Indies. They are common throughout the rainy season in the parts of the tropics which have a wet season and a dry season, for example, the monsoon region of southeastern Asia and the Sudan of Africa. They are common during the summer months in parts of the middle latitudes which have summer rainfall, for example in eastern United States and in Russia and eastern Argentina. They occur occasionally in summer in subpolar regions and even in winter over the sea near Iceland. In the United States 60 to 80 thunderstorms occur in an average year in each locality in much of the Southeast, most in Florida, while 20 to 40 occur in most of the Northeast, and 20 to 50 in most of the West, except on the Pacific coast, where there is little summer rainfall and hence few thunderstorms. Thunderstorms occur, however, in spring and autumn in the California type of climate; for example the vineyards of southern France suffer badly from hailstorms incidental to thunderstorms.

Tornadoes

Tornadoes, often called cyclones, are are as compared with thunderstorms and are of minor importance, but they are often so dramatically destructive that they attract much attention. They are especially common and destructive in the United States, and it is sometimes stated that they are unique here. This is not true, however, as tornadoes have repeatedly occurred in all the main parts of Europe, including England, and in southern and eastern Asia and in Africa and South America, while Australia has about as many per year (140) as the United States.

Tornadoes are small but exceedingly violent whirls started by opposing winds and associated with sharp vertical contrasts in temperature. They start in the clouds and extend to the ground only where the air near the surface is relatively warm, as compared with the higher air. Tornadoes rise above the surface again whenever the surface air is relatively cool. Hence, as to time of day, destructive tornadoes occur chiefly in the afternoon or early evening. The few destructive nocturnal tornadoes have occurred on hot, sultry nights.

Tornadoes are more than ten times as frequent near the center of this country than in the Northeast or the West. They are least common in the most arid region, where, however, violent almost tornado-like dust whirlwinds are frequent. In the approximately 2,800 tornadoes recorded by the Weather Bureau in the United States during the twenty years, 1916-1935, 5,224 people were killed and property losses in excess of 230 millions were sustained. Losses in excess of $100,000 were caused by an average of about twenty tornadoes a year, losses in excess of $1,000,000 by about two. In that 20 year period, three caused losses of $24 to 43 millions each; one of these three and two others killed more than 100 people. The worst was that of May, 1925, chiefly in southern Illinois, in which 689 lives were lost. The average American annual loss is 261 lives and about 12 million dollars worth of property.

Tornadoes have occurred in all of

the States and Canadian provinces and in Alaska. They affect so small a strip (generally about a sixth of a mile wide by 10 to 30 miles long) that the chances that any spot will be hit are small. Even in the area where they are most common, the chances that an average farm will be crossed in a century are less than one in a thousand. Many farms are crossed without damage to the buildings; many buildings are demolished without the loss of a human life.

Hurricanes, Typhoons and Lesser Tropical Cyclones

More than 200 tropical cyclones, of which some 40 have hurricane winds, develop annually over the tropical and sub-tropical oceans. They affect significantly more than one-fifth of the globe and the world's population.

Although the destruction they cause is often terrible, tropical cyclones benefit a much wider belt than they devastate. They do this chiefly by bringing rainfall to large parts of the tropics which otherwise would be too dry. The terribly destructive type rarely occurs, except in the Far East. Distant or incipient cyclones set up air movements which induce convectional over-turning, giving rise to thunder storms. Much if not most of the rainfall of these latitudes is induced by cyclonic disturbances, weak or distant. Tropical cyclones as a class certainly do more good than harm.

Tropical cyclones are whirling storms which vary in intensity from mild disturbances to violent hurricanes; they average about 300 miles across, develop chiefly in latitudes 10-20°, and travel generally roughly westward, pushed by the Trade Winds. They also move into progressively higher latitudes until they die away or leave the tropics. If they reach midlatitudes, they slowly recurve and then are carried eastward by the prevailing Westerlies and become lows. Tropical cyclones usually travel rather slowly, generally only about ten miles an hour; the whirling winds about the center, however, have velocities ranging from less than 20 miles an hour to more than 75. A few have wind velocities of 150 miles per hour. The wind's destructiveness is due partly to its sudden variation in velocity and direction.

Tropical cyclones are often destructive because of the strength of their winds, the torrential rainfall, and, on bodies of water, the high and tumultuous waves. Typhoons, the name applied to strong tropical cyclones in the Far East, cause the death of an average of several thousand persons a year, few years passing without the death of more than a thousand, while occasionally huge numbers die. For example, on August 3, 1922, more than 30,000 were reported killed near Swatow, China, while the next year the death of over 100,000 in and near Tokio, Japan, is attributed to the typhoon which prevailed during the fires started by the earthquake of September 1. In India few years pass without numerous fatalities and occasionally the toll is huge; indeed there are competent estimates that more than 200,000 persons were drowned on October 3, 1876, and about 300,000 on October 7, 1737, in the delta of the Ganges-Brahmaputra River, near Calcutta. In the West Indies and neighboring regions, the toll is several hundred a year on the average, when account is taken of the heavy losses in exceptionally destructive storms. For example, about 2,000

persons were killed in and near New Orleans in 1893, 3,300 in Puerto Rico in 1899, 6,000 in and near Galveston in 1900, and 2,500 in Puerto Rico and Florida in 1928. In Martinique and nearby islands as many as 20,000 were officially reported killed by a hurricane in 1781. Cuba has had hurricane fatalities of 1,000 or more during a number of years, and in 1791, 3,000 were reported killed there. The hurricane which demolished most of the houses of the capital of Santo Domingo on the island of Haiti, on September 3, 1930, is reported to have killed about 4,000 people and done damage to property in excess of $40,000,000. Tropical cyclones that lack destructive winds may do serious damage by heavy rains, more than 10 inches often falling in a day or two. These deluges cause serious floods and severe soil erosion.

Tropical cyclones enter the United States chiefly from the West Indies and the Gulf of Mexico, but occasionally one progresses northward along the western coast of Mexico, affecting southern California or Arizona. Some storms which developed in the western Pacific (the Far East) as tropical cyclones (typhoons) also enter the United States from the northwest, as lows. Indeed a considerable share of our lows are of tropical origin. An average of about twenty cyclones a year enter the South or pass northward near the Atlantic coast. Of these, three on the average are hurricanes and two have gale winds (32-75 miles per hour.)

Especially disastrous American hurricanes with the reported loss of life are as follows: 1881, August, coast of South Carolina and Georgia, 500; 1893, August, coast of Carolina and Georgia, 1,000; 1893, October, New Orleans, etc., 2,000; 1900, September, Galveston, 6,000; 1915, August, Galveston, 280; 1915, September, New Orleans, 275; 1926, September, Florida-Mississippi, 399; 1928, September, Cuba, Florida, 3,000; 1935, September, Florida, 300; 1938, September, Long Island, New England, 682. American property loss was highest in the 1938 New England storm, estimated at $400,000,000. The Galveston 1900 storm did an estimated damage of $30,000,000. The Florida hurricanes of 1926 and 1928 caused great tangible property loss, and in addition punctured the Florida Boom, causing a sharp decrease in real estate values.

Lows

The largest type of storm is the mid-latitude cyclone or low, of which somewhat more than a hundred occur each year in the United States and about as many in Europe, and produce an almost continuous change of weather. Other regions having many of these storms are the middle latitudes of Asia and the region around Antarctic, extending as far north as southern South America and southern Australia.

Lows have an average width of about 600 miles, ranging from about 200 miles to about 1000 miles. They travel usually some 400-700 miles a day. Their normal wind velocity is about 10-20 miles per hour over the land. Over the North Atlantic and in the North Pacific however, wind velocities of 40 miles an hour are common, and frequently cause seasickness to travelers.

Lows are important for five chief reasons: (1) They bring rainfall to large and important regions which

otherwise would be dry, for example, most of the interior United States; (2) They bring our changes of weather; (3) They afford the basis of our weather forecasts; (4) They cause considerable destruction of life and property, and much inconvenience, by the winds, rains, hot waves, and by the thunderstorms and tornadoes associated with some of them. (5) The changes of weather are stimulating to mankind both directly and indirectly. The importance of this last influence is suggested by the fact that the more progressive, civilized peoples are in areas where numerous cyclonic storms cause frequent changes of the weather.

The lows of mid-latitudes are the great rain bringers of their region but many yield considerable rainfall only in the more humid sections of their paths. For example, in the United States, the lows which cross from the Pacific to the Atlantic may yield no rainfall in the region between the Cascade-Sierre-Nevada and the Rocky Mountains, and only a little over the Great Plains. But as they enter the humid eastern half of the country, they draw moisture from the Gulf of Mexico, and yield increasing amounts of rain as they pass eastward. Conversely, lows which pass from the Atlantic Ocean into Russia and Siberia yield less and less rainfall as they pass farther and farther from a sufficient source of moisture. In Central Asia they may cause only cloudiness, or perhaps yield a few drops of rain, as similar storms do in crossing our Great Basin. They bring rain by drawing moisture from the sea (as a result of the inblowing winds) and especially by inducing condensation and precipitation by the convectional disturbances which they set in motion.

Lows bring our change of weather by altering wind direction and velocity, by inducing cloudiness and by producing rain. They change the winds because the fundamental part of a low is an area of below-average air pressure into which wind blows spirally. Thus on the western side there are northerly winds, which usually are relatively cold as compared with the southerly winds which are characteristic of the eastern side. Therefore a cyclone approaching from some westerly direction first causes the temperature to raise conspicuously, and then, as the center passes, to fall rather sharply. The warming as the low approaches is due not only to the warm southerly winds, but party to the liberation of latent heat by the condensation of part of the moisture they carry. The clouds which are formed interfere with the escape of the heat, and help make the nights relatively warm. The cooler northerly winds which prevail shortly after the center of the low passes, produce first a dash of rain or snow and then a clearing of the skies, with much cooler nights.

The lows afford much of our basis for weather forecasting since most scientific weather forecasting is based on a study of the approaching lows. The forecasters attempt to predict when they will arrive and whether or not they will have here, when they do arrive, the characteristics they had previously. Many lows are altered as they move eastward by the effect of other lows and highs and other conditions. Their rate of advance eastward is also not uniform and their courses are often changed. As a result, the forecasts are only approximately correct.

The general eastward movement of

lows is due to the Westerlies, which prevail overhead most of the time in the United States, pushing the cyclonic masses east or east-northeast. That the highs move, in general, east-southeast instead of east-northeast, shows that the prevailing Westerlies are only one influence. A second is that, as the result of the continual blowing of the Westerlies, air piles up in polar and subpolar latitudes. From time to time some of this air must return to lower latitudes or else finally much of the air would accumulate near the Poles. Our highs are masses of subpolar air which have broken away and are moving east-southeastward across the United States. A third, often highly significant influence which affects the courses followed by the lows, is the air pressure conditions which prevail at the time in nearby areas.

Unquestionably the stormy regions now dominate most of the rest of the world politically, economically and culturally. The fact that two thousand years ago the regions which are now dominant were then of secondary importance, perhaps is partly due to the fact that modern man, with the help of coal, glass, steel and things made from them, can now live with fair comfort in stormier and more stimulating regions than could primitive man. Possibly also the Mediterranean lands formerly were stormier than at present. that there have been great changes of climate since man appeared is proven by the great glacial ice sheets which accumulated and disappeared since then.

A question of vital interest is whether or not the people of the cyclonic regions will continue to dominate, or whether, with their help and such inventions as air-conditioning and such stimulating influences as the radio and rapid transportation, the people of the less naturally energentic regions can carry their full share of the "burden of civilization."

Impacts *of the* War *on the* Pacific Northwest

By R. M. SHAW
Central Washington College of Education
Ellensburg, Washington

THE impacts of World War II were probably felt first in the Puget Sound area in the fall of 1939, two years before Pearl Harbor, with the construction of a large shipyard in Tacoma to build cargo vessels for the Maritime Commission and the establishment at Port Townsend of a Coast Guard school for the training of recruits. At any rate, during 1940, the government poured huge sums of money into this area for the activation and expansion of old and the construction of new military establishments. Two passenger ships were converted into troop transports in Seattle drydocks and the Boeing plant in the same city, on the basis of a $23,000,000 contract from the Allied Purchasing Commission for Douglas-designed bombers, increased its floor space 75%. Because of the tremendous defense construction program in Alaska, piers and buildings were acquired in December for a Quartermaster's Supply Depot in Seattle for the purchase and shipment of supplies and materials to the Territory. The full force of the defense program was not felt in the Portland-Vancouver area until the beginning of 1941 when Henry Kaiser, because the labor supply of the area had not yet been seriously tapped, constructed the first of his three shipyards there. The movement did not reach the Spokane area until spring of 1942 when large scale construction operations were started on a number of war plants and military installations.

From these beginnings there followed a vigorous growth of construction and a development of the light metals industry as well as both advantages and adverse affects on the basic economic activities of the region, agriculture, grazing, transportation, fishing, mining and lumbering. Coinciding with it all was the initial use of Bonneville and Grand Coulee power houses which generated vast amounts of low-cost hydro-electricity in search of a market.

These activities brought not only thousands of soldiers and sailors to the region but likewise thousands of civilians from over the region and country to certain centers for the construction and operation of military bases and war plants.

Increased Population

Of the dozen states showing an estimated civilian population gain between April 1940 and December 1943, two, with a combined increase of 270,486, belong to the Pacific Northwest. Among these twelve states, Washington ranked a low second to California and Oregon, sixth. The other states of the region, Montana and Idaho, lost an estimated total of 139,880 persons.

Like the United States as a whole, most counties of the region lost popu-

lation to the armed services and to war-industry centers, but a small number, chiefly metropolitan counties, showed large gains. The thirty-two counties showing increases had raised their total population by 382,315, 89% of which was in three metropolitan areas: Seattle-Tacoma-Bremerton-Everett, 47%; Portland-Vancouver, 39; and Spokane, 2½%. One non-metropolitan area, Pasco-Hanford, showed a gain of 4%. In addition to civilians these centers are crowded by service men from neighboring military camps, some of which are very large.

Inasmuch as few houses had been constructed for rental purposes during the depression, the first flood of workers occupied whatever shelter they could find until housing could be provided. At present, 100,399 family units and 23,860 dormitory units, constructed or converted by federal and private funds, are occupied by war workers. Most of them are in the large urban centers:

	Families	*Single Persons*
Portland-Vancouver	34,047	8,383
Seattle	19,232	1,081
Bremerton	9,898	1,096
Tacoma	4,519	147
Spokane	4,027	0
	71,723	10,707

Some of the largest public housing projects in the country are in the Pacific Northwest, two of which, Vanport City and McLaughlin Heights, rank first and second in size.

Co-related to housing of in-migrants loomed the pressing problem of providing schools for children. At Vancouver enrollment jumped from 3,830 to 11, 931; in Bremerton, 3,324 to 7,310, and likewise in other congested areas of the region.

Three counties of every four in the region have declined in population. This is reflected in manpower shortages in agriculture, mining, and lumbering. In the case of farm labor, and also seasonal food processing labor, the situation has been met by selective service deferments, acceptance of the situation by communities, and importation of workers. Opening of school is often delayed so that students can assist in harvests. Mexicans have harvested sugar beets in Idaho, vegetables in the Kennewick area, potatoes in central Oregon, pears and apples in the Hood River Valley. In 1944 both German prisoners and Mexicans, as well as workers from Arkansas and Missouri, harvested apples in the Okanogan valley. Italian prisoners picked hops in the Willamette valley. Japanese from relocation camps and Indians from reservations have helped at harvest time. Soldiers from Fort Lewis picked berries in the Puyallup valley. In response to urgent pleas of operators, housewives, students, clerks and business men have worked part- or full-time on day or night shifts in canneries. Increased use of hop picking machines and experiments in mechanized picking of cranberries is a response to labor shortage.

War Activity Centers

The major centers of war activity in the region, the Portland-Vancouver and the Seattle-Tacoma-Everett-Bremerton areas, are west of the Cascades in the Puget Sound-Willamette trough. They are the region's peace-time areas of largest population.

The resident population of the Portland-Vancouver "congested-production

area" in May 1944 was estimated to be 660,583. In-migrants since 1940 totaled 222,134 but the drain of men into the armed forces reduced this gain to about 160,000. Thus one of every three persons in the area had moved in since 1940.

Cheap hydroelectric power at Bonneville and a deep-water access to the Pacific Ocean marked this area for tremendous war-time industrial development. Outstanding activity is shipbuilding employing about 115,000. Metal working shops, doing sub-contract work for shipyards and other prime producers, increased from 4,000 to 15,000 workers and another 1600 are in the aluminum plants. Three military establishments, the Portland Air Base, Vancouver Barracks, and the Port of Embarkation, influence the civilian population though to a lesser degree.

To provide shelter for these workmen, eight public housing projects were contructed on the borders of Vancouver, largely on its east side, and twenty-five at Portland. Most spectacular of the latter group is Vanport City, a community of 40,000 midway between Vancouver and Portland, whose site was chosen for its proximity to the three Kaiser shipyards. Built in eleven months' time, it is now the second city in population in Oregon, the fifth in the Pacific Northwest. Composed of uniform two-story apartments painted light green, it is saved from monotony by a natural shallow lake, winding waterways fringed with native trees, curving boulevards, and scenic hills and snowpeaks in the background. Schools, an administrative center, fire and police stations, community and shopping centers, a library, and infirmary, playground and sports areas, a warehouse, a maintenance building, and ice houses provide for the social, civic, and service needs of the residents.

A city of only 16,000 in 1940, and feeling growing pains with a new aluminum plant and Bonneville substation, Vancouver, with the establishment of the Northwest's largest shipyard and eight housing projects, jumped to 27,000 and became one of America's most congested cities. Including its suburban areas, it has expanded from a conservative community of 24,000 persons[1] to a hectic one of 79,000. People are everywhere — all color, all creeds. Theaters, restaurants, stores, streets and buses literally bulge with humanity.

The Seattle-Tacoma-Everett-Bremerton area was already rolling in high gear when Pearl Harbor stunned the nation. Federal funds and contracts, as well as workers, had poured into this area since the national defense program was started in the summer of 1940: (1) Because of its coastal position and such strategic installations as the Navy Yard, it was liable to attack. Old defensive positions needed strengthening; new ones to be built. (2) Such plants as the Navy Yard and the Boeing aircraft factory were bound to expand in an emergency. In a national program for a two ocean navy and an expanded merchant marine, the area, through tradition, facilities, and forest resources, was suited to participate. (3) It is the nearest major area to Alaska where extensive mili-

1 Whereas it took 125 years from the time the Hudson's Bay Company established itself for Vancouver and its suburban areas to grow into a community of 24,000, McLaughlin Heights, one of the eight housing projects, under pressure of war, sprang up to equal size in less than a year.

tary installations were under construction and to Vladivostok whose ships were stopping for repair and bunkering.

Bordering the drowned shores of Puget Sound, this area of a million[2] people is a complex of over-peopled large and small cities, military bases and war plants, housing projects, rich agricultural valleys and infertile wooded divides, and islands waterways, and ferries. Thousands of workers came to expand or construct Bremerton Navy Yard, Fort Lewis, Mount Rainier Ordnance Depot, McChord and Paine fields, Sand Point Naval Air Station and other vital installations. Others came to work in the Navy Yard, shipbuilding, and the Boeing plants.

Largest city in the Pacific Northwest, Seattle stretched its capacity to the bursting point. With 24-hour production schedules, living activities are continuous throughout the day. Ships pull up to its wharves to load military supplies and lend-lease or to debark soldiers from war theaters. The flood of humanity that mills through its streets and habitats is colored with uniforms and the overalls or slacks of workers.

Renton, twelve miles south, provided residence for workers from Seattle's south side industrial district; then, when its own Pacific Car and Foundry Company began the manufacture of General Sherman tanks and the giant Boeing plan was built in 1941, it had to construct large housing units to shelter the inflow of workers who number four or five times the town's normal population.

Kitsap County, with the Bremerton Navy Yard, Keyport Torpedo Base, and Puget Sound Ammunition Depot, increased its population from 43,047 to 91,726 (November 1943.) As early as July 1940, a housing authority was formed at Bremerton to provide homes for the influx of workers to the Navy Yard. Large housing projects were also built at Port Orchard and Poulsbo for employees in all three naval installations. Many workers commute daily to the Navy Yard from Seattle by ferries following the route which, until recently, was Bremerton's connection with the urbanized east shore of Puget Sound. War conditions have broken Bremerton's boast that it was the largest city in the United States without railroad connections. When construction began on a new ammunition depot at Bangor, a line was extended to that point and Bremerton from Shelton, at the southwest corner of Puget Sound.

Tacoma, Everett and all communities yielded to the pressure of a constant inflowing surge of workmen.

Among the smaller areas west of the Cascades accelerated by war are Astoria and Corvallis. The former, at the mouth of the Columbia River, is a center for fisheries and for naval activities, including the Tongue Point Naval Air Station; the latter, in the Willamette Valley, contains a marine air base and Camp Adair, a large army training center.

Establishment of Camp White at Medford and of marine barracks and a naval air station, as well as increased demands for lumber and wood products, at Klamath Falls, have brought an influx of workers to these Klamath Mountain cities of southwestern Ore-

2 Estimated population was 986,507 in December 1943, a net increase of 178,091 persons since April 1940. The increase in population was 250,000 but the departure of men for the armed services reduced the gain.

gon with attendant problems of housing and rent control.

In the intermontane region between the Cascades and the Rockies, there are two major areas of impact, Spokane and Pasco-Hanford, and several lesser ones.

War plants and military establishments in the Spokane area include aluminum and magnesium reduction plants, an aluminum rolling mill, the Spokane Army Air Depot, the Second Air Force training centers (Fort George Wright, Geiger Field,) the Naval Supply Depot, Baxter Hospital, and the Farragut Naval Training Station, the last of which is located in northern Idaho.

Construction, largely in 1942, and operation of these units caused the population of Spokane county to advance from 164,653 in 1940 to 190,000 in 1943. The air depot employs 8000 and the light metals plants, 4000. Railroads and meat packing plants increased employement under stimulus of war time needs.

Pasco, at the confluence of the Snake and Columbia rivers, has been submerged beneath a deluge of civilian workmen and naval aviators. Because three railroads with port terminals in Seattle and Portland touched the town, a holding and reconsignment point for the expedition of lease-lend goods was established there before Pearl Harbor. During the winter of 1941-42 the Pasco Naval Air Station was constructed. Later, the Hanford project, government-owned and Du Pont-operated, was initiated, its purpose still being a closely-guarded secret.

Air force facilities in the region were considerably expanded. To supplement Geiger Field and Fort George Wright at Spokane, additional air bases were made at Ellensburg, Moses Lake, Ephrata, and Walla Walla in central Washington, at Pendleton, Madras, and Redmond in Oregon, and at Boise and Mountain Home in southern Idaho. Several hundred thousand acres of bunch-grass land also were reserved as gunnery and bombing ranges for these bases. In addition, an army ordnance depot at Hermiston, an ordnance plant at Pocatello for relining and rifling worn naval guns, and Camp Abbot near Bend, comprising 20,000 acres on the upper Deschutes for the training of combat engineers, were built. Construction and operation of these units concentrated thousands of workmen and airmen on the small cities nearby. Trailer camps grew up over night and during the army maneuvers in central Oregon, in one day, 20,000 soldiers visited the USO center at Bend.

Although they contain military installations, the Walla Walla and Yakima areas are more concerned with production of food needed in the war effort. Besides an air base, Walla Walla is the seat of an evacuating hospital for army troops. Contrasting the uniforms of the army on the streets are those of sailors enrolled in the naval programs at Whitman College. However, its prime war contribution is made through quantities of canned green peas and dry edible peas grown on converted wheat and barley acreage encouraged by government supported prices.[3] So with Yakim. During an 18-mouth period, 370,000 service men were entertained at the Yakima USO, most of whom were from the

3 The war has made eastern Washington the heart of the pea industry in the United States. Whitman county produces 40% of the country's dry edible peas for lease-lend and soup for the armed forces; the Walla Walla area, 20% of the canned peas.

nearby Army Artillery Firing Range which embraces 130,000 acres of sagebrush land. Also, a thousand mechanics were trained for the Second Air Force at a trade school. But ranking fourth in agricultural products in the United States in 1942, Yakima county contributes outstanding amounts of fresh, canned and dehydrated fruit and vegetables as well as beet sugar for war purposes.

Three centers in the Rocky Mountains are of interest. Sun Valley, year-round recreation center of the Union Pacific railroad in southern Idaho, has become a Naval Convalescent Hospital, where hundreds of returned fighters, suffering from malaria fatigue or rheumatic fever, are restored to health under ideal conditions of care and climate. At the Farragut boot camp, established in September 1942 on a timbered bay of Lake Pend Oreille, the Navy has trained 287,875 recruits.[4] Since 1942 airplanes from American factories have been taken to Great Falls, on the upper Missouri in Montana, for northerly flight to Fairbanks where Russian airmen take them on to Europe's eastern front.

Principal Manufactural Industries

Those units employing the largest number of employees belong to the aircraft and shipbuilding industries. The manufacture of light metals is an important new development. Much smaller in size, as units, but significant in totality, are the scores of shops doing sub-contract work for prime producers. Important also in the war effort are food processing plants, sawmills, and forest-products concerns.

The Boeing Aircraft Company, a world leader in aviation design since its founding (1916) in a small "aeroplane" shop on Seattle's Lake Union, is the lone producer of airplanes in the region. The company has grown in the few years since the finger of war pointed at this nation, until it is one of the largest units in the country's airplane program. In 1940, as stated, it increased the floor space of its Seattle plant. Two months before Pearl Harbor, another addition was made. War was on its way and the Army was getting ready. It had ordered increasing numbers of Flying Fortresses (B-17's), some of which were sent to England under lease-lend. The Renton plant was built in 1941. Later, eight sub-assembly plants were set up in six cities of western Washington, taking advantage of local labor markets. Employing 4,060 workers in 1939, today Boeing's Washington factories are operated by perhaps ten times that many, more than half of whom are women.

When the Army issued specifications for a bomber design competition in 1934 it called for a "multi-engined" plane. Boeing engineers went to work and the first of the B-17's emerged in July 1935. It was America's first four-engine bomber, the first warplane to combine giant striking power and huge bomb load with the speed of a pursuit plane. The Army was impressed and ordered thirteen of these mighty weapons. With Munich only on the horizon, further orders were slow and Boeing brought out its Clipper and Stratoliner planes. But the B-17 was not forgotten; as the war clouds gathered and broke in Europe, it was improved constantly. By December 1941, mass production was under way and Boeing was ready with the

4 Ellensburg Record, October 20, 1944.

weapon that, first, was to check the Japanese from sweeping the entire Pacific and, later, to spearhead the air attack on Hitler's Europe.

In 1941 Boeing's Seattle plant and the Lockheed and Douglas companies of California were brought together in an unprecedented production pool organized to meet the Army's demand for B-17's. So successful[5] was it that a similar one, incorporating eastern companies, was formed in 1944 to produce Seattle-designed Superfortresses (B-29's.)

The Seattle and eight satellite plants are now being converted to the manufacture of B-29 sub-assemblies. Production of B-17's will continue until conversion is completed when the California plants will become sole producers. The Renton plant will handle the final assembly of Superfortresses in the region. It is the hope of the Army that the B-29 will accomplish over Asia what the B-17 did over Europe.

Shipbuilding is concentrated on Puget Sound and the lower Columbia. A minor center is located on Gray's Harbor. More than 200,000 now work in the region's shipyards as contrasted with 5,500 (including Navy Yard) in 1939. The largest wartime yards have constructed a host of Liberty and Victory cargo ships, tankers, aircraft carriers, attack transports, LST's, and destroyers; the lesser yards, a multitude of smaller wooden and steel war vessels including seaplane tenders, barges, LCS (L)'s, mine-sweepers, mine-layers, and submarine net tenders.

Although the eight shipyards at Portland-Vancouver contribute importantly to the war effort, it is the three Kaiser yards, employing 75% of the shipbuilders in the two cities, that have largely transformed the area's peacetime patterns. By September 1, 1944, the Kaiser yards, employing on that date 87,224 workers, had turned out 332 Liberty ships, 32 Victory ships, 30 LST's, 50 escort carriers, 83 tankers, and two attack transports. In order to complete a joint assignment of sixty-one attack transports for the Pacific campaign by the end of 1944, the Vancouver and Oregon yards went on a seven-day schedule. On completion of this program the latter will resume construction of Victory ships and the former will start work on C-4 transports. To speed up construction of these transports a sub-assembly plant was built upstream at The Dalles. Steel plates are cut at the Vancouver yard and sent by barge to the Oregon city where they are fabricated and returned by water. In Kaiser-fashion the workers at The Dalles were turning out welded section plates before the walls and roof of the plant had been built around them. The Swan Island yard has not interrupted its program of turning out a tanker every fifth day.

About 75% of the sixty ship and boat yards on Puget Sound engaged in the construction of war vessels are in the Bremerton-Seattle-Tacoma-Everett area. The Navy Yard at Bremerton and the Todd units at Seattle and Tacoma comprise the largest yards of the area. When crippled warships limp into Bremerton, 30,000 workers make speedy repairs. When there is

5 In May 1944, the 5,000th B-17 built in Seattle, covered with the names of several thousand workers, was christened "Five Grand." Based in England, this bomber, except for minor damage on her first run, has carried her autographs unscathed on many missions. "Ten Grand" was built by the pool on October 9, 1944.

a lull in repairing battle damage, they contruct new fighting ships. In 1941, the famous British battleship, the H.M.S. Warspite, was at Bremerton for repairs. So vital is the yard, that when news came of the catastrophe in Hawaii, the first barrage balloons in the region were hoisted over it, anti-aircraft guns rushed in, submarine nets stretched across channell approaches, and patrol planes flew overhead. The Todd Seattle Dry Docks were built during the last war. In October 1941 five Russian ships were in this yard at one time for reconditioning. In the fall of 1939 the Todd Shipbuilding Corporation obtained a contract to build cargo vessels for the Maritime Commission and erected a large shipyard in Tacoma's tideflat industrial area. Laying of the first keel marked the return of heavy commercial shipbuilding to the Pacific Northwest after an absence of sixteen years. Many escort aircraft carriers have been launched at this yard, some of which were delivered to the British. In September 1940, the same company built a ten-way yard on Harbor Island at Seattle to make destroyers for the Navy.

The development of the light metals industry, located primarily in the lower Columbia and Spokane areas, was closely related to the availability of large blocks of low-cost hydro-electricity generated at Bonneville and Grand Coulee dams. A secondary locational factor was the aviation industry on the West Coast.

As part of the government's plan to increase magnesium production to meet war needs, a reduction plant was built by the Defense Plant Corporation in northeastern Washington where cheap power and dolomite are available. The site near Spokane is less than 100 miles from Grand Coulee dam. Dolomite is mined open-pit at Marble, 120 miles by rail to the north. The plant is operated by the Electro-Metallurgical Company and its output goes to the Metals Reserve Company.

More numerous are the aluminum units which number five reduction plants and a rolling mill. The Alcoa reduction plant at Vancouver, which began operation in late 1940, was the first one built west of the Mississippi and the first major industrial customer of the Bonneville Power Administration. Planned in 1939 as part of the company's peacetime expansion program, Alcoa doubled its capacity during construction and later added other potlines to meet a rapidly increasing demand for aluminum by expanding aircraft factories. The Reynolds Company also selected a Columbia river site at Longview for its plant. The Defense Plant Corporation erected similar ones near Spokane, at Tacoma, and at Troutdale near Portland; and a rolling mill at Spokane. The Tacomo plant is operated by the Olin Corporation and the others by Alcoa. These reduction plants, which produced a fourth of America's aluminum in 1943, treat alumina derived from bauxite in East St. Louis or the deep South and shipped west by rail, although since May 1944 the Tacoma plant has been receiving small amounts of alumina obtained from alunite at Salt Lake City. The rolling mill, the only one west of Chicago, supplies West Coast aircraft companies with sheet aluminum rolled from ingots produced at the five reduction plants. This mill eliminates two transcontinental railroad trips, "wasteful joy

rides," for aluminum used by western aircraft manufacturers. Until the Spokane mill was completed in 1943, it was necessary to ship alumina from Illinois or Mobile to the Pacific Northwest for reduction, return the ingots east for rolling, and transport the aluminum sheets to the Pacific Coast for airplane construction.

In the building of ships and planes, the prime producers depend upon a host of shops and small plants for parts and for sub-assembly and subcontract work. Many foundries, machine works and sheet metal shops in Portland and Seattle have built additions to their establishments and, using their own skilled mechanics as a nucleus, expanded their personnel. Not all of these concerns are in the large cities. A venetian blind factory at Salem makes instrument panels for Boeing, a shop in Walla Walla turns out steel casting for Portland shipyards, and a stove works in Everett makes galley ranges for Liberty ships launched on the Pacific Coast. Some of these concerns work independently of the prime producers in the region. A maker of garbage cans at Kent became the largest producer of Garand rifle clips in the country and a tent and awning company in Yakima now makes army tents, sleeping bags, and landing slings for ships.

Impacts on Basic Industries

Statistics on the catch of fish for the past three years show no decrease in production. This, however, was accomplished by increased effort on the part of fishermen; for the effects of war on this industry were adverse. Briefly, they were: requisition by the Army and Navy of a number of the best vessels in the fishing fleet; total or partial military closure of certain fishing areas; prohibition of lights on beaches curtailed yield of clams for two seasons; manpower shortage; scarcity of netting because of quantities used in camouflage and lease-lend; and rather high prices paid for soupfin shark and dogfish livers because of emphasis on vitamin A needs diverting boats from the food fisheries.

The mining industry was effected by the war in a number of ways. A manpower shortage, due to the exodus of miners to war plants, not only affected production but retarded development work. Nevertheless, within the region, there was a maximum production of copper, lead, zinc, petroleum and other minerals within the limits of available labor. Price increases caused the reopening of mines. This was true of mica mines in Idaho. The output, badly needed for electrical equipment, was sent to Moscow and Troy to be cut into marketable sizes. Influence of the government was evident in a number of ways. Removal of priorities for materials needed in gold mining closed, as planned, all mines and dregding operations. Price support of quicksilver enabled Oregon to rank second in its production during the four-year period, 1940-1943. When stock piles become big enough, through stimulated domestic production or increased imports because of lessened submarine menace, government assistance is removed. Contracts for low-grade chromite from Oregon beach sands were terminated and newly-built concentrators closed when imports of metallurgical chromate began arriving in quantities. When the output of tungsten from a newly discovered high-grade deposit in southern Idaho be-

came large, the bonus paid on the metal was removed.

Preparation of the war plants in the United States required lumber for cantonments, warehouses, hangars, shipyards, and heavy structures where wood replaced steel. The offensive phases of the war made lumber an expendable item and the demand insatiable. On the west of the Cascade divide the region has felled its Douglas and noble fir, spruce, hemlock and Port Orford cedar for such specialized needs as structural timbers, frames for wooden war craft, 128-foot keel timbers, pontoon bridges, decks of airplane carriers and battleships and airplane stock. On the east, pine forests have produced boxes for fruit, ordnance and plane packing.

Forest products plants have shaped their output to the needs of war. Many new uses for plywood, such as huts ments and bomb-bay doors, have been effected. A pulp mill at Everett now makes a chemical wood pulp for smokeless powder.

Conclusion

With the stepped up war in the Pacific it is inevitable that continued and ever new impressions will make their stamp on the Pacific Northwest. For some time, evidences will persist. Reconversion and dismantling cannot be achieved at the signing of the peace.

United States forces in 1942 occupied bases secured from Ecuador on Santa Elena Peninsula, westernmost point in the country, and the Galapagos Islands. These islands lie squarely under the equator but due to the cool Peru Current the climate is not unhealthy. The word Galapagos means turtle and the group is the home of huge land tortoises that sometimes attain an age of several centuries. The islands are of volcanic origin and much of the ground is covered with very rough lava flows. The group has an area of 3,000 square miles and the population is very small.

Florida: The Land *of the* Sun

By SIGISMOND deR. DIETTRICH
Geographer, State Department, Washington, D. C.
On Leave From University of Florida.

WHEN Floridians travel, and are confronted with the ubiquitous question: "Where do you come from?" the interrogators, hearing the answer, are overcome with awe, and exclaim: "Oh, Florida, the Land of the Sun!" If flippant, however, they may venture to extoll the virtues of California's oranges, or Texas' grapefruit, apparently being entertained by the undeniable discomfiture of their innocent victims.

In public opinion Florida is the state of beaches, sunshine, lovely climate, millionaire tourists lounging lazily in the brilliance of the tropical sunshine along the snow white beaches of the tepid waters of the Atlantic or the Gulf, under the azure southern sky. Florida is the state where citrus fruits come from. The well-informed know even of some of the vegetables imported by northerners which relieve the winter diet from the montony of dried beans and potatoes. Aside from these half truths there is little known generally about the state. Yet, Florida is much more than a playground for tourists, or even a supplier of oranges and vegetables. It is a youthful, vigorus state which, at present is growing and maturing at a faster rate than any other state in the Union.

Facts And Figures

Normally there is nothing exciting in facts and figures. Long statistical tables can be very boring indeed. Yet, when the dead ciphers come to life in the light of interpretation and correlation the static picture becomes animated and hitherto unrealized relationships are discovered which explain the apparently unrelated phenomena. Thus, in order to understand the real significance of Florida we have to review some of the basic facts and figures pertaining to the Land of Sunshine.

Florida is the southernmost state of the Union. This is the most pertinent, basic fact of its existence. The northernmost nook of the state is farther south than California's southernmost cranny. Situated between latitudes 31° N. and 24° 32′ N., just one degree north of the Tropic of Cancer, Florida lies in the great desert belt of the world. The Sahara, the Arabian and the Sonora deserts all are in the same latitudes as Florida, yet it is far from being a desert. Tallahassee, the state capital, and Jacksonville, the Gate City, are on the same latitude as Cairo, the capital of Egypt. Miami, the Magic City, is due west from the ruins of Thebes, the fabulous city and shrine of ancient Egypt. Key West is slightly north of Assuan, a town located on the first cataract of the Nile, and famed for its huge dam impounding the turbulent flood waters of the mighty river, thus rendering year round irrigation possible in Egypt.

Another little realized fact is the western location of Florida. The coast of North America, south of Cape Hat-

teras, describes a huge arc which reaches its inland apex in the neighborhood of Jacksonville. Thus, Florida, as a whole, lies between Pittsburgh (longitude 79° 57′ W.) and Chicago (longitude 87° 40′ W.) or due south from Lakes Michigan, Huron, and Erie. This means further, that the populous Atlantic States are not only north but also east of Florida. Nor is the fact less significant that the location of Florida places it in the western hemisphere and at the southeastern corner of a large continent. There is hardly space to go into all the ramifications of this basic fact; let it suffice to point out some of the human and climatic implications of Florida's location.

Being at the eastern entrance of the Gulf of Mexico, and guarding the most convenient northern passage into the Caribbean, Florida possesses an extremely strategic situation which, combined with its peninsular shape renders Florida the key to the control of the American Mediterranean. The power holding the peninsula is in the best position to exert an overwhelming dominance upon the inland seas and the littoral where vital avenues of trade converge in a zone of four over-lapping spheres of cultural and racial influences; viz, the Indian, the Spanish, the Anglo-Saxon and the Negro. This is the reason why Florida became the coveted prize of the clashing, colonial imperialism of Spain, Great Britain and France. This is why ultimately, the growing continental power of the youthful United States had to acquire the peninsula in order to prevent the loss of its control over the Mississippi Valley. With the acquisition of Florida the peninsula's fundamental geographic reality of being an attached part of the continent had become a political reality as well. Thus, the pertinent geographic factors, working slowly but irresistibly, gained expression in the political fulfullment of the latent potentialities inherent in the location of Florida.

The latest manifestation of the location factor is found in the rapid development of Miami as one of the most important hubs of inter-continental airlines. Situated near the southern tip of the peninsula where it bulges farthest eastward, Miami occupies a nodal position between North and South America and Africa. Again, few people realize that most of South America lies much further east than her northern neighbor. How far eastern South America's location is can be best illustrated by the example of one flying due south from Daytona Beach. The only part of the South American mainland which would be touched would be the small promontory of Cape Parina, in Ecuador, forming the apex of the western extremity of that continent. Miami itself is a little to the west from the Panama Canal.

Florida lies in the desert belt, but far from being a desert, it is one of the wettest States of the Union. The reasons for this are again found in its location on the southeastern margin of the continent exposed to rain bringing winds from the Gulf and the Atlantic. In this respect Florida is comparable to southern China. Indeed, many a typically south-Chinese plant found a new home in Florida. To mention just one which promises a great future there is the tung tree, the nut of which furnishes us with an excellent oil used in paints and varnishes. There is also the bamboo, which at present is hardly utilized, but if one looks at its manyfold uses in China, from food to furni-

ture, from matts to bridges, one cannot fail to be impressed with the potentialities of the bamboo under the ingenuity of the American technician who produced over 100 products from the lowly peanut.

The climate of Florida, often overrated by well meaning, but mis-leading propaganda booklets, bears the typical earmarks of its location and its shape. Aside from its sub-tropical location, the fact that Florida is a peninsula and not an island, explains some of the "unusual" weather conditions occurring every now and then, to the great embarrassment of hotel men, and the disappointment of tourists.

Florida should be warm during winter, and the tourist's Florida usually is. But the Peninsula is not all of Florida. It is only half of the State. If a line were drawn from Jacksonville to Cedar Keys, on the Gulf Coast, it would divide the State into two almost equal halves, Western Florida, or Mainland Florida, as it is known, which stretches along the Gulf Coast, resembles in every aspect, Georgia and Alabama; whereas, southern Florida or the Peninsula, is the Florida of the tourists, of the oranges and tropical skies.

Two great opposing factors dominate the weather conditions of Florida. One is the continental mass and its extreme weather conditions, hot summers and freezing winters, the other is Florida's sub-tropical location, producing a climate of pleasant, rather dry winters and wet, warm summers. During winter the dry, trade winds prevail, bringing clear skies and sunny weather. Coming off the warm seas their temperatures are pleasant, and if careless tourists do not take to shade, but remain on the beaches too long, they will burn, crisp and blister as never before. True, it is hard to realize the potency of the winter sun of southern Florida, while reading about blizzards and snow storms in the home town, which facts, of course, are well displayed on the front pages of the papers, together with eventual earthquakes and the more common "liquid" sunshine of California winters.

Continental conditions engender severe winters which may, and occasionally do penetrate into Florida. The alluring names so popular in certain places, notwithstanding, outside of Key West, no part of the state can claim to have been entirely free from frost. The farther south one goes, and the nearer the coast, the fewer and milder these cases become. There may be years between killing frosts in southern Florida; but ultimately they will come. These cold spells, however, last only for brief periods and occur infrequently. During a period of 30 years there were only six years when the temperature dropped to 32° F. or below in Miami, with the lowest temperature on record being 27° F. The northern part of the Peninsula and all of the Mainland, have considerably colder winters than southern Florida. Both the frequency and intensity of the cold spells increase as one approaches the Mainland. Thus, Miami having an average winter temperature of 68° is from 8 to 10 degrees warmer than Jacksonville. The average winter temperature for the state as a whole is 60° F.

Aside from the regular winter cold spells of short duration and moderate intensity, with temperatures just below freezing, there are about three or four real bad "freezes" in a century. These are caused by the development of unusually strong cold waves in the Mid-

dle West, which overflow and cover much of Florida. These freezes, infrequent, as fortunately they are, play a tremendously important role in the life of Florida. The best known was the Big Freeze of 1894-95. Its effect was devastating. During the eighties and the "gay nineties" Jacksonville, St. Augustine and the Upper St. Johns Valley were the wintering places of the fashionable people. Railroads were just being built, and steamships churned the lazy waters of the brown St. Johns. Plantations and citrus groves flourished wherever steamboats could penetrate, or the trail-blazer railroad ventured. Speculation in land caused a mild flurry and boom in Florida, that is, in an extremely small section of the State. Southern Florida was still a wilderness, inhabited by the hardly subdued Seminoles, and equally wild Crackers and cowpunchers, the former squatting on small patches of clearings, the latter living almost like nomads, every now and then rounding up their wild cattle which roamed the roadless wilderness of hammock, piney flat, and marshy meadow. One must remember the razor back too, that scrawny, rough caricature of a pig which, more often than not, had to be hunted like legitimate game, which was abundant. Only little better were the conditions in the far western end of the State. The contrast between the fashionable winter resort and citrus region of East Florida, and the old plantation area of the Mainland around Tallahassee, on one hand, and West Florida and most of the Peninsula on the other, was great indeed.

Then came the "Big Freeze." The effect was a disaster of unbelievable dimensions. Whole communities ceased to exist. Not only did the temperature drop way below the danger point for citrus, but also it lasted long, and actually there were two cold waves, with just one warm spell between, as if to insure that nothing will be spared. The fruit froze, so did the trees, bursting as they froze. Around the Lakes Region, in the vicinity of Leesburg and Eustis, which had been just recently linked by rail to the North, of the thousands of orange trees growing there not more than 100 survived the freeze. This area then marked the southern end of the citrus belt. On the southern shore of beautiful Lake Newan, rich Yankees from New England had built a prosperous colony called Windsor. Stately New England style buildings located along the main street looked back on acres of orange groves. After the freeze no one returned, and Windsor became a haunted village, shunned by everyone, until a few years ago when the Agricultural Resettlement Administration repaired some of the dilapidated mansions, the business section, and peopled the town with immigrants from the ruined lands of the eroded South. There were several Windsors all over East Florida. The Mainland did not suffer as badly as the orange growing and tourist catering East. Their crops were annual, and neither cotton, tobacco nor corn was permanently injured by the cold. Yet this was not the coldest freeze on record. That occurred four years later, in 1899. The temperature in Tallahassee dropped to −2° F, a record breaking low in Florida's weather. That this later freeze was not as important as the "Big Freeze" can be readily understood if one realizes that the "Big Freeze" ruined everything and in 1899 there was very little left to be damaged.

No matter how disastrous the "Big Freeze" had been, in ultimate analysis, it has been largely responsible for the opening up of the peninsula, and for the creation of the Florida we know today. There was no vested interest left after the freeze to object to the expansion of the citrus industry in the south. Records of fair weather during these inclement periods in northern Florida convinced the enterprizing, energetic men of the state to open up the wilderness and tame it with railroads and culivation. Thus, actually the "Big Freeze" proved to be a blessing in disguise rather than an unmitigated disaster.

The summers of Florida are not bad. As a matter of fact, the average summer temperatures are moderate (81°F.) Daytime temperatures fluctuate between 85-90° F. but at night even in inland places, the temperature drops considerably and one can sleep in comfort. Along the coast nights may become quite cool and in the early morning hours a light cover feels quite comfortable. On the whole there are no more than a few nights which remain uncomfortably hot. Similarly, temperatures over 90° F. occur only infrequently. It is not the temperature, says an old adage but the high humidity which makes the weather unpleasant. The Florida summer is truly tropical. It is the humid and rainy season. Yet it has a great deal of sunshine, since most of the rain falls in the form of convectional showers in the early afternoon. The Tampa Bay Region has the highest frequency of thundershowers in the United States. Actually, the combined heat and humidity makes the early afternoons the least pleasant part of the day. After the rains, however, it cools off and the evenings and nights are usually pleasant. For a long time the popular notion about the "tropical" summer prevailed and tourists avoided Florida in the summer. Just before the war, however, more and more people realized that Florida summers are pleasant, especially on the beaches and slowly a summer tourist business started to flourish, promising a fuller utilization of Florida's natural advantages.

There is neither a real spring nor autumn in Florida. The majority of trees are evergreens and there is no riot of color of the autumn foliage nor is there the death like bareness of the northern winter. Spring is more marked than fall or winter since even the huge oaks shed their leaves and get a fresh, light green foliage. The pink-bud, dogwood and crepe-myrtle bloom together with the wild plum. Later the regal magnolia buds open into their white, heavy scented, waxy flowers. White color and heavy scent is typical not only of the magnolia and orange blossoms but also of the sweet honeysuckle and other, often night-blooming vines, bushes and trees which may continue to blossom during summer.

There is one more feature of the Florida climate one must, no matter how unwillingly discuss, that is, the hurricane. The hurricane is a typically tropical storm occurring on the southeast coast of the northern continents. In China they are known as typhoons, in the British tropics as tropical cyclones. No matter what their names hurricanes are very destructive and disagreeable storms leaving devastation and death in their wake. They are erratic and occasionally they may avoid the islands and the tropical coasts to strike at the most unexpected regions,

like the Middle Atlantic States and New England. They occur mostly during fall and early winter, and cover a large area with the zone of destruction extending from 50 to 300 miles. The wind velocity near the center of the hurricane where the devastation is the most intensive, may reach 100-120 miles per hour. If wind velocities do not rise above 60-70 miles then one speaks about a "baby" hurricane. The force of the wind is hardly believable. During the tragic Miami hurricane in 1926 exposed frame buildings were simply blown away. Frequently onshore gales whip up huge tidal waves, like in the case of the Miami hurricane and ten years later the Matecumbe storm. The most recent hurricane which struck Florida in October has been rather interesting in its path which cut across the middle of the State.

There are hurricanes and hurricanes. Most of the ones striking at Florida do not cause very heavy losses. Often they are more rainy than blowy. The amount of rain during a hurricane can reach almost incredible proportions. During a recent, rainy hurricane which lasted about two and a half days it rained almost 20 inches. This equals the annual amount of precipitation of the "humid" part of the Middle West. Small wonder that the number of roads damaged and flooded for days was high, especially in the poorly drained flatwoods areas. Fortunately really destructive hurricanes do not strike at Florida more than about once in a decade.

Little Key West which had not been in the direct path of a destructive hurricane as yet, owes its emergence from a dream like, peaceful existence to the ferocious Matecumbe hurricane which destroyed parts of the famed overseas railroad. This curiosity of Florida built by Flagler and completed in 1913 proved to be very disappointing as a business venture. After the destruction of parts of its bridges and roadbed the right of way was partially taken over by the government. A magnificent highway replaced the railroad rendering Key West accessible to thousands of motorists and offering them a thrill which cannot be matched elsewhere. Where else can one drive over the key studded sea where the cobalt waters of the Atlantic merge into the emerald of the Gulf?

The foregoing examples illustrate the effects of Florida's location, and let it be repeated that this location is the basic geographic factor underlying and guiding the development of the state.

The next little realized fact is the size of Florida. With an area of 58,560 square miles it ranks second in size among the Atlantic States. Almost 8% of its area is covered by water which is the largest water area included in any single state of the Union exclusive of the Great Lakes. It contains the second largest lake entirely within the United States, the shallow, round Lake Okeechobee. The large size and the peculiar, inverted "L" shape of Florida have far reaching effects upon its development. Distances are great between the extremities of the state. The shortest and best overland route from Pensacola to Key West is 850 miles or equivalent to the distance between Pensacola and Chicago. The distances from Jacksonville to Pensacola and to the beginning of the overseas highway at Kew Largo are 370 and 400 miles respectively. In the early days of difficult travel these great distances caused a distinctly divergent

development in East and West Florida. Taking these differences into consideration the British in 1763 divided the newly acquired territory into two colonies. Almost a century later, when the discussion came up about the admission of the territory to statehood a proposal was made to create a single state but give permission to the Floridians to divide this state into two independent units if the political union between East and West Florida would become an unbearable burden. This proposal, of course never passed Congress but even if abortive it was an interesting example of geopolitical rationalization. The opening of the peninsula to settlement and economic activities altered the situation radically. By becoming a transitional zone between Mainland and Peninsula old East Florida, the St. Johns Valley and the Northeast Coast slowly changed from being the center of dissention to the centripetal nucleus of the modern State.

Due to its size and shape, together with its geologic evolution Florida has the longest shore line of any State in the Union — covered with fine, sandy beaches stretching all along its shores. Floridians capitalized early on climate and beaches in developing the tourist industry, which so to speak, has put Florida on the map and, which, incidentally is greatly responsible for some of the false notions about the State.

People And Economy

Florida as an agricultural state is a fact "known to everybody." Even Floridians hold to this axiom. If, however, the economic conditions of Florida are carefully scrutinized the fallacy of this statement becomes crystal clear. Far from having an agricultural economy Florida proves to be an urbanized, all round state.

Looking at the population first, it becomes apparent that well over half or 55.1% of Florida's population is urban. Today, due to the influx of war-workers and the military the population of the state is roughly estimated around two and a quarter million souls. Even before the impact of war has been felt Florida's population increased by 29.2% during the decade preceding 1940. This rate was among the highest in the Union. Another important movement has been the heavy concentration population in urban centers. The three Florida metropolises, Jacksonville, Miami and Tampa, and the seventeen cities with over 10,000 population accommodate 43% of the Floridians. If the relative sizes of the farm and non-farm population are analyzed the results are equally illuminating. According to the Census of 1940 only 305,240 people or 16.1% of the total population were classified as farm population. What is even more striking is the fact that almost two-thirds of the rural people, those who live in places with less than 2,500 inhabitants, are classified as non-farm. Stated in a different way this means that these people pursue other economic activities than agriculture.

The percentage distribution of occupations bears out this same point; the farmers of Florida constitute only 17.1% of the labor force, whereas, 25.6% is engaged in business and finance, and 18.1% in industrial occupations. These data were obtained before the war. Due to the increased industrial activities since the outbrake of the war, like ship building, today we may safely assume that industrial

employment has risen to 20-22 per cent. Thus agriculture does not play as dominant a role in the economic life of Florida as one might think.

The other "well known" industry is catering to the tourists. Under normal conditions this industry employs 8% of Florida's working population. This, however, is not a true picture of the full significance of the industry mainly for two reasons: first, the ration of employment per enterprise in the catering business, including hotels, boarding houses, eating places and places of amusement, is different from other industries; second, that aside from those directly employed by the tourist industry a certain proportion of business employment should be included in this percentage since a considerable volume of business is directly or indirectly dependent upon the tourist trade. Yet it must be remembered that the tourist trade is highly localized in a few relatively small areas of the state. All in all the tourist catering industry is less significant than either manufacturing or agriculture.

The obscured phases of Florida's economy are its forests, fisheries, livestock, mining and manufacturing. The Florida pine is one of the greatest assets of the state. A combination of favorable geographic conditions make the pine mature here in a considerably shorter period of time than elsewhere. This makes the growth of forests more economical and renders a carefully planned forest policy profitable. One third of the state's manufacturing enterprises belongs to the forest and allied industries. Food industries account for one fourth of Florida's industrial production. Quite surprisingly, however, only 27.5% of the total production of the food processing industries was based upon commodities grown in Florida. Tobacco is third in rank, followed by publishing and printing, stone, cement and fertilizers; finally ship and boat building. In 1939 these six groups accounted for 91.75% of Florida's total of $241,538,534 value of manufactured products. Most of these industries are based upon local resources. Two notable exceptions are the food industries other than canning, and publishing and printing; both are typical of highly urbanized conditions.

The fisheries fall into two main types: first, fisheries supplying primarily local markets; second, fishing for export purposes. Shrimps, oysters and sponges are the chief products for export. An interesting new field has been opened recently by the shark fisheries, not to mention another speciality, the turtle canning industry concentrated mostly in Key West. Sharks are used for the reproduction of vitamine oils, canned shark specialties and fertilizer. Fishing plays an important part in the recreation of tourists and it should be mentioned in this connection even if the fish produced is used only to be photographed, not necessarily by its legitimate captor, to be shown to the amazement and wonder of the folks at home.

The livestock industry of Florida had many ups and downs. During the War between the States the Confederacy depended heavily upon Florida cattle for its meat supply. Scrawny cattle have been long exported to the Caribbean islands. As conditions have improved and settlement expanded the cattlemen were forced to give up the wild cattle range system. In 1923 the tick eradication law cut heavily into the business and for the time being the

number of cattle fell off by 50 per cent. At the same time breeding was greatly improved and today the number of cattle has risen to a new high with a distinct improvement in the quality. By no means is the saturation point reached and further improvements in range and cattle may render this industry even more important that it is at the present. Hogs, due mainly to climatic conditions will probably never be as important as in many other states. The poultry industry, however, has made great strides already, and further improvements and expansion are expected. Apiaries are increasing in number and in West Florida the tupelo honey is a specialty of national interest.

Florida is not well known for its minerals, yet the State possesses a great wealth in certain non-ferrous minerals such as limestone, clay, sand and gravel, fuller's earth and especially phosphates. Almost three fourth of the nation's production of this important base of fertilizers comes from Florida. Besides these, quantities of lesser minerals are known, some of them in the beach sands which are not fully utilized at present, but which with increased technical improvements will become of great significance, like ilmenite, rutile and zircon. There are rich founts of minerals waters. Lately even oil had been discovered but it is too early to predict to what extent this may alter the picture.

The present war has played a tremendously important role in the whole economic life of the state. Construction and manufacturing have increased by leaps and bounds. The presence of a huge army personnel in the various camps and the influx of labor has swelled the state's population thus intensifying its economic activities. Curtailment of civilian construction caused crowding everywhere with its ill results. The influx of the army had its bad effects upon the immigration of a rather undesirable type of people. But on the whole the development was orderly. The question now arises what will be the permanent effect of this war boom? Today this question cannot be answered with certainty. Judging from the past, however, it is safe to predict that the intensification of urbanization and industrialization caused by the war will remain a permanent feature of the life of Florida even if considerable shifts in the type of industrial organization will take place.

So this is Florida, the Land of the Sun, or shall we say Florida the Unknown! It has its citrus, it has its tourists, yes! but it has also its forests, mines, fisheries and animals. It has an increasingly significant manufacturing industry and a strategic location with reference to the world's airways. Above all of these it has its people, keen, alert and progressive! Florida is a vigorously growing state of great resources and opportunities, inhabited by people who have repeatedly demonstrated that they can turn nature's worst disaster into success. Yes, that is Florida, where man came into the wilderness and within a brief span of time with courage and imagination, yet not without failures and costly mistakes, built up a vigorous, successful state. Its dynamic past is but a mere prologue of an even more splendid future which is yet to come when all the rich resources of Florida will be fully and wisely utilized by its people.

The Role *of* Geography *in* Post-War Education

By HOYT LEMONS
Assistant Professor and Supervisor of Geography of Washington State College Pullman, Washington

IT has been said that no good comes from war. While this may be debatable, no one will deny that its lessons are many. For Americans, an obvious lesson to be learned from the present war is the need for more geographical information. Lack of this knowledge, even among our leaders in government, has affected our diplomatic relations, our trade, and our war effort. It is almost certain to hamper our efforts at the peace table and in plans for the post-war world.[1] Power politics based on geographical factors will be the order of things then just as it is now before the war ends. The fruits of battles can easily be lost by our representatives while bargaining with the shrewd diplomats of the Old World who are as well versed in geographical as in political matters.

Geographical thinking is vitally essential to good citizenship, both in peace and in war. It was estimated recently that four-fifths of all the problems with which we or our leaders must deal, concern (1) resources — their use, ownership, or taxation, (2) specific places or regions, and (3) relations with foreign countries and peoples. Geographic knowledge is necessary in understanding such problems, and mere experience in politics does not provide that information.[1]

Citizenship, in tomorrow's world, however, will not be limited by national boundaries, for shrinkage of time and space by modern invention makes us world citizens. These closer relations between nations of unlike political philosophies, enchance opportunities for friction. Our war participation, moreover, is bringing us obligations and opportunities all over the world. Geopolitical problems are rising all around us. With peace, what territories should we keep? Strategic points in national security won by blood will not readily be relinquished. Yet where does imperialism begin? Have we fought and bled for the simple return of the British, French, and Dutch empires? In the interests of world peace, what voice will we demand in their final disposition? To solve these and other problems wisely in the years to come our leaders and our populace need proficiency in the use of the world's geography. The problem of attaining this is essentially one for education. Geographical training must form an integral part of our educative process — from the grades to college.

I

In our country the teaching of geography has received principal emphasis on the elementary level and has been

1 Renner and Associates, "Global Geography," Crowell Publishing Company.

practically absent from secondary schools. Yet even in elementary schools its progress has been unsatisfactory in many respects. Why has such an important subject fared so poorly in these two divisions? Various factors are apparently responsible, the more important of which are: (1) Competition has been strong from new subjects such as "current events," "social studies," biology, and general science, and from better established older subjects. In some instances these latter receive strong backing from special interest groups. Geography, having no such groups, receives no such backing. (2) Early geography, which was largely physical due to influence of geologists, failed to sufficiently contribute to the basic principle of secondary school education as set forth by the organizers of our first public high school. The purpose was "to give a child an education that shall fit him for active life." (3) Those in positions of administration and curriculum construction have shown too little interest. Few such persons have college training in geography, and this reacts against it while favoring subjects with which they are more familiar. (4) So few people know any public demand for it. (5) Poor and ineffectual teaching has lead to student dislike of the subject. Taught, as it often is, by descriptive and memorization methods, it frequently is a dead subject or a snap course. To be effective, geography must be taught in an interpretative manner. The dots of a population map show *where* people live; but the *why* of their being there involves interpretation and arouses interest.

Most of the cause of poor geography teaching, however, may not be laid at the door of the trained geography teacher. Too frequently, geography has been passed around like a cast-off shoe to anyone who would teach it, regardless of previous preparation. While this was typical of high schools, it has occurred frequently in elementary schools, and is not unknown even in colleges when a course or two in geography has been needed to round out a special curriculum. A survey of 83% of New York City high schools shows that only one-fourth of those teaching geography have been licensed to do so. Moreover, more than half of them have had no work in geography at the college level.[2] A survey in the senior high schools of Texas indicates that only a small fraction of those teaching geography have had such courses in college. In addition, teaching combinations include geography with any and all other subjects.[3]

Although the matter of accrediting geography teachers is a concern of accrediting agencies, administrators must, for the time being, personally assume responsibility for correct teacher background. This will be the major step in assuring effective as well as interesting teaching.

Effective geography teaching at any level requires constant work even for the teacher trained in geography. Materials of all sorts — films, filmstrips, posters, model maps, specimens, study guides, reference pamphlets and books, etc., must be used. Short field trips, laboratory exercises, and projects are useful in rounding out most courses. While many materials and devices may be procured or constructed cheaply,

2 Seni, Herman S. "Ineffective Geography Teaching—Why?" Journal of Geography, May, 1938.

3 Foscue, Edwin J. "The Place of Geography in the Senior High School with Special Reference to Texas," Journal of Geography, March, 1936.

others such as good globes, maps, and atlases are expensive. Therefore, the financial backing of the administration is necessary.

(6) A frequent apathetic or complete lack of interest is evidenced by college geography instructors for geography in the elementary and high schools. These instructors, although primarily interested in college teaching and research, must take a more active interest in the pre-college subject. Some of the types of assistance which administrators and teachers have a right to expect from professional geographers are (1) summer school courses, (2) courses taught for teachers emphasizing the economic, political and social implications of such geographic factors as landforms, soils, and climate, (3) aid, particularly in summer school, in the preparation of courses of study, supplementary units, and lists of teaching materials, (4) correspondence and extension courses, (5) preparation of texts, especially for high school, (6) participation at teachers' conventions, and (7) more contributions to educational periodicals on the values of geography to our educational process. On the other hand, the administrator and the teacher have the responsibility of calling on the geographer for his expert advice. This will be gladly given if the need is indicated.

II

On the elementary level geography is handled in different ways from state to state and from place to place within states. It is taught from as few as six weeks to as many as eight years. "Current events" and "social studies," which have been substituted for it in many places, do not justify claims of administrators (according to the author's first-hand observations) that geography is taught when supposedly included in them. The teachers are usually trained in other fields and emphasize those fields. Occasional geographical fragments may be brought in; yet what of the basic implications to society of landforms, of climate, and of water bodies? Until teachers have training in all the social sciences, including geography, the geographical parts of these courses should be questioned.

There is little unformity of courses, texts, testing, or certification for teaching, although the National Council of Geography Teachers is working constantly on them.[4] A greater degree of standardization is needed.

III

On the college level geography was making fair progress prior to the war, being strongest in teacher training institutions and liberal arts universities especially in the Midwest, East, and in California. Yet there were only some 500 professional geographers (almost all college teachers) throughout the country at the beginning of the war.[5]

Since college students become the intelligentsia of our country, it would seem imperative that more of them get at least a general course in geography, and those desiring liberal arts degrees should be required to take more. All students majoring in any social science should be well grounded in geography. The social, political, and economic aspects of a people can be more intelli-

4 Those interested in the work of the National Council or in securing aid from it address: Dr. T. F. Barton, Sec. NCGT, Southern Illinois Normal University, Carbondale, Illinois.
5 Lemons, Hoyt and Cannell, Lewis, "Geography Aids War Training," Education, March, 1944.

gently and correctly interpreted when viewed against that portion of nature constituting its homeland.

Although it is commonly predicted by many that geography will expand on the college level after the war, this will fail to occur unless geographers and others get behind the movement. Few people, even on college faculties, know much about the actual content of present-day geography. Moreover, at times of curriculum revision, the competition and pressure of other well-established departments to increase their own required offerings, make adoption of new subject matter difficult.

Institutions and departments of education have a definite responsibility for requiring geography of prospective teachers and especially those in the social sciences. Some departments of education require courses in Elements of Geography and World Regional Geography of all students. Others have yet to require any.

Although ordinarily constituted as a separate department, in some institutions (especially State and Technical Colleges) geography is often attached to departments of commerce, business administration, economics, geology, or even to schools of mines. In these latter cases geography courses function as service courses. Those in economic and commercial geography while useful, may be detrimental if they contribute to some of our hare-brained economic notions. A very common one treats that prosperity depends on getting rid of things rather than acquiring them, and that advantage accrues to us from exporting goods regardless of whether the recipient countries have commodities we want in exchange. Typical is the statement of a business man, highly exuberant over postwar trade with China. When reminded that China has little buying power and few materials that we want in return for our goods, he observed that we could extend credit for payment. Geography should not be used as a mere tool to discover potential customers. In its fuller regional development it teaches that no nation is self-sufficient, that there are comparative advantages in production, and that nations, to insure prosperity and peace, must buy if they are to continue to sell.

IV

Although geography is considered important enough to be classed as a major study in secondary schools of Western Europe and many countries of South America, it has been only of minor importance in the United States and Canada.[6] [7] A survey in 1936 indicated that geography was taught in some form or fashion in the senior high schools of only twenty-four of our states. Of 830,000 senior high school students in thirty-three of our leading cities all over the country, only 4.7% were studying geography.[8] In seven of the cities no geography was taught. Less than 1,000 of the 25,000 senior high school students in the State of Washington are studying geography in a given year.

6 "With but few exceptions, every pupil in a secondary school in any country of Western Europe, is required to take several years of continuous unified training in the subject, usually under a teacher who is a specialist." Journal of Geography, February 1935, p. 73.

7 "In England every high school has a graduate teacher in geography (often with honors) from one of the universities." From personal correspondence with Dr. Griffith Taylor, Head of Geography, University of Toronto.

8 Chamberlain, J. F., "Geography in the Senior High School," Journal of Geography, March, 1936, pp. 108-109.

The status of geography and the attitude of educators toward it in Canada is aptly summarized by the University of Ontario's eminent geographer, Dr. Griffith Taylor. "I cannot get Canada to see the need for geographic teaching — either in war or peace. We have no inducement in the better schools for students to learn geography — since all their time is taken up in studying matriculation possibilities. Geography is not thought worthy of pre-university study . . . . Here in Canada I doubt if there are half a dozen (graduate geography high school) teachers, where we need several thousand. But I can't get a move out of the School of Education folk."

There is considerable interest in high school geography as a result of the war, yet the practical high school administrator faces two important problems in adding it to his list of courses.[9] One is the paucity of teachers trained in geography and another is a curriculum already crowded and strained. These problems can be solved, however, if there is sufficient interest to do so. There are many teachers of geography, especially those trained in Teachers Colleges. The available supply will increase with peace and the return of teachers from the Armed Services and from more lucrative war jobs. Also, a search will often reveal teachers, even in the local school system, with geographic training who are teaching in other fields. If such a search fails, other arrangements can be made. A teacher in a related field, who is interested in geography, may be trained while teaching through (1) summer school courses, (2) correspondence courses, (3) extension classes, (4) In-Service Training aid from geography departments of colleges of universities, and (5) securing aid and materials from college geography departments and from the National Council of Geography Teachers.

The major obstacle, however, is to find room for this new subject in the curriculum. The problem may be approached in one of three ways: (1) Include it among social science requirements. (2) Incorporate it within social studies courses or correlate it with some subject such as history. (3) Offer it as an elective. The first alternative is preferable, of course, since it would insure the maximum number of students receiving some geography. This solution, however, meets the objection of adding more required subjects to the curriculum. The legitimacy of the objection rests with the curriculum supervisor, who must weigh the comparative merits of existing required subjects and a new one which is seeking admission.

Although theoretically ideal, the offering of geography as one ingredient of a fusion-type of social studies course is not yet practical, since the instructor in charge seldom has any background in geography. As a result, geography actually gets little attention in the course. Also questionable is the device of adding units of geography to history or similar courses.

In many cases the most practical method of introducing geography into the curriculum is through elective courses. To succeed, these must be supported financially and otherwise by the administration and must be taught by qualified teachers. That such courses will succeed, we have proven to

[9] Cannell, Lewis, "The Coming of Geography," Washington Education Journal, November, 1944.

our satisfaction in the State of Washington.[10]

Various surveys of the past decade indicate that the leading courses in geography over the country have been economic and commercial with physical geography second. There appears to be a definite trend currently, however, toward a type of human geography which fits in with social science subjects. A year's course in social geography was important in Detroit high schools as early as 1936. A new required course called Civic Geography was introduced in the Seattle high schools (9th grade) in 1943. This course includes "world view, world climatic regions, and map interpretations, together with emphasis upon reresources of the Northwest." Handicapping features are "so few teachers qualified to present geography and the lack of adequate textbook material."[11]

In Oregon high schools an elective course in world geography has "gained marked popularity." It is designed to "emphasize the influence of geographic environment upon cultural development of peoples." Moreover, "through the medium of geography (we) hope to lay some foundation for better interpretation of history."[12]

Many high schools over the country are introducing a one or two semester course called "Global Geography" or "Air Age Geography." The 1944 MacMillan text, "Our Air Age World," is suitable for these courses. It is doubtful, however, if such a course, popular during the war, will make lasting additions to many high school curricula.

Two courses in human geography should be added to the high school curriculum. First should be an introductory course in Elements of Geography for freshmen and sophomores. The first part of the course should systematically treat the elements — location, landforms and water bodies, weather and climate, soils and mineral resources, natural flora and fauna, etc. The last part should be a study of the principal world regions. The material learned at first should be employed in interpreting human use of these regions. The course will develop a world viewpoint, rather than a provincial one which might result from study of the United States alone. If placed in the lower division of high school, the course will prepare a background for subsequent courses in history and other social sciences. A suitable text is a 1941 McGraw-Hill book, "The Earth and Its Resources."

The second course should be Political Geography, for juniors and seniors. It might with profit displace "current events," "social problems" or a course in history. Nations are viewed in light of their locations, spaces, resources, and populations. Geographic assets or handicaps which have influenced the courses of nations in the past and may be expected to do so in the future are ascertained. What is the population and the population trend of a nation? Are its resources adequate for the present? For the future? Is it out-

10 An example is that of Colfax High School (250 students) where the superintendent and high school principal were interested in introducing geography. They found a qualified teacher, who was trained in geography at Eastern Washington College of Education under Dr. O. W. Freeman, in their own elementary school system. This teacher, during summer school graduate courses in geography at Washington State College, worked out a course of study, a list of materials, texts, supplementary units of study, etc. The first course has proven very popular.

11 From personal correspondence with W. Virgil Smith, Assistant Superintendent, Seattle Public Schools.

12 From personal correspondence with Joy Hills, Supervisor of Curriculum and Publications, Oregon Department of Education.

growing its space and resources? Is it well situated for trade? Does its history indicate a willingness to wage war to achieve the ends it desires? These things and others are basic to an understanding of the actions of nations — past, present and future.

Political geography should emphasize that human geography changes as technology develops. It should also bring out the fact that physical geography, while essentially static, changes in its significance to man. Potentialities of regions change as time goes by. As a nation we must anticipate change as much as possible or be left behind. The British controlled the seas for centuries simply by holding a dozen strategic points controlling shipping lanes. As the air age unfolds, could it not be that the dominant nations will be those possessing critical points of control for air routes? History records the names of many states left by the board because they did not anticipate geographical change. The democracies' lack of appreciation of the international significance of the airplane almost proved fatal. How important will our protecting oceans be when the robot is perfected?

No satisfactory text exists for a course in political geography, although by supplementation, "Geography and Society" (J. B. Lippincott Co., 1938) might suffice. Materials from Renner's "Geography in the Air Age," Renner's and Associates' "Global Geography" and others may be brought in by the teacher.

Each of these courses, Element of Geography and Political Geography, should be a year long for proper content development. If only a semester in length they may be unpopular since other desirable one semester courses are often unavailable for filling out a year's program.

If two years cannot be allotted to geography, an alternative is a one year course composed of one semester of Elements of Geography followed by a semester of Political Geography. This course, if an elective, should be open to sophomores, juniors, and seniors. This heterogeneity of students will add to difficulties of presentation. The course has proven satisfactory, however, in the Colfax (Washington) High School. There is no suitable text available yet, although by supplementation and elimination "Our Air Age World" or "Geography and Society" can be used.

V

During the war soldiers and civilians both are learning geography the hard way. The need for geography in waging war is apparent and our military leaders have included its technical material in most military programs. War is highly geographic. It is fundamental to every consideration of grand strategy, of interim strategy, of logistics, and of battle tactics. Strategical planning is based on knowledge of landforms, water bodies, climate and terrain. Troups are trained and equipment perfected for desert, mountain, winter, polar, and tropical warfare. Military, naval, and air corps tacticians must cope with physical geography. Each hill to be stormed, each river to cross, each beach to take, rainy and dry seasons, weather to be flown through — all are geographic factors and knowledge of them and their portrayal on maps is essential to military success.

While the values of geographical knowledge in wartime are readily ap-

parent, those of the coming global peace will be equally important, although less clearly perceivable. Our participation in the maintenance of peace, our efforts in assuring our own national security, regional planning for a more abundant life for Americans — all are problems stemming from geography. We Americans, in our short national existence, have been so busy "going West," taking up land, making fortunes from timber, oil, and metals, and raising children to populate a vast land, that we have taken little time to learn and make correct use of our own geography let alone that of the world as we fit into it. We have not looked past our own noses. For example, our soil, the very basis of life, is melting away from beneath our feet at the rate of 100,000 acres a year. The time has come to shake off this historical provincialism. An important antidote to our malady of isolationism is to increase our knowledge about our foreign neighbors. The more our citizens understand their problems, handicaps and weaknesses, the more friendly our relations are apt to be. Mistrust arises from ignorance and fear of the unknown. Geography treats of foreign peoples and their environments and of their relations to the rest of the world. Geography can contribute the study of conservation of natural resources to post-war education. Geography can aid in regional planning — recommendations for wise use of areas after surveying their geographical assets and liabilities. Educators have the responbility of making geography an integral part of American education from the grades to college.

Leyte, invaded by MacArthur and his men, lies on the eastern side of the central Philippines. It is 120 miles long and near its middle the island is only 15 miles wide. Hills and mountains cover much of the area. Leyte is over twice as large as the state of Rhode Island. The pre-war population was about 358,000. Chief exports are sugar, copra and abaca fiber (Manila hemp.)

Area—Language Training

An Army Experiment

By J. SULLIVAN GIBSON
Mississippi College For Women
Columbus, Mississippi

THE gigantic educational program developed in connection with the training of Army and Navy personnel for the present war emergency, in breadth, variety, and intensity, far surpasses all former efforts to correlate academic training with military operations. The program embraces almost as wide a range of educational work as does our civilian system; and its content and techniques of presentation in many instances are virtually new to formal education as many of us know it. The area-language division of the Army Specialized Training Program, popularly known as the ASTP, is a training experiment in which both military and education find stimulation.

This is one of the most unique of educational experiments. Many phases of the military program — meteorology, radar, aviation et al — have become fascinating, exciting studies, partly because they deal with hitherto unknown, or little known, matters. Area-language training, on the other hand, deals with two elements as old as civilization; and since organized education began, two systematic fields of discipline, geography and language, have enlarged and enriched man's field of knowledge. Area-language study is not exciting and stimulating; it has no appeal to layman or scholar who has not already developed a liking for and a proficiency in foreign languages. But it is unique in its unusual combination of subject matter fields and in its radical departure from traditional methods in tried disciplines. This new endeavor, therefore, holds much of interest to those concerned with educational experiments that break distinctly with tradition; and upon the success or failure of this program may depend some significant educational changes in the post-war period.

The War Department early recognized the need for large numbers of men proficient in specific foreign languages and thoroughly acquainted with the areas where such languages are spoken; but it was sometime after the war training program got under way that plans for meeting this need began to take form. Combat duties, administrative services, policy making positions, occupation duties, and liason services all demonstrate a need for area-language specialists. According to the revised plan of the program these specialists are to be assigned to several military phases, in the following order: Army Ground Forces, 58%; Military Intelligence Service, 19%; Office of the Provost Marshal General, 10%; Signal Corps, 10%; Army Air Forces, 3%.

The need to train thoroughly all men selected for area-language work

appears obvious from the fact that the War Department found virtually no stock-pile from which to draw men with so unusual a background as the specific jobs required. Never before has our educational system stressed the area-language combination. But necessity is the mother of invention, and this pressing need for an unusual kind of proficiency called forth a new kind of training.

The all important time element necessitated stream-lining the training program; yet thoroughness and efficiency were absolutely necessary to insure success. A program promising to deliver its first trainees, thoroughly prepared for specific jobs, early in 1944 had a good chance to succeed; but a plan that would necessitate delaying to a much later date risked becoming another "too late." Thus, a nine-months, stream-lined program enrolled its first trainees in the spring 1943 and delivered to the Army a large group of well trained men the following spring.

Administrative Organization

Most academic phases of the war program were well under way when the area-language program was launched; thus, heavy war assignments already burdened many colleges and universities. But the commendable way in which American educational institutions placed their resources at the government's disposal insured ample facilities for any and all essential academic programs.

Participating Institutions

The War Department from nearly fifty approved institutions selected eighteen universities to carry out the work under this program. These institutions were located in widely separated parts of the country; the basis of their selection, however did not appear to be one of regional location but rather one of teaching staff and general facilities. Each school limited its offerings to fields in which it was well staffed; this simplified the job for each institution, increased efficiency, and reduced duplication of effort.

Language Staff

The nature of this job places rather strict requirements on the language staff of each participating university. The stream-lined character necessitates a definite break with traditional practices, thus calling for flexibility and versatility not found in every language faculty. In many instances it was necessary for the respective university to strengthen its language faculty by adding instructors proficient in the respective languages and capable of approaching their study from the native point of view. With emphasis falling on the colloquial spoken language forms, acquaintance gained through experience with native peoples proves desirable, especially since so much depends on ability to work with and to supervise native tutors. A large number of these tutors, known as informants, were added to each language department. To function as drill-masters in colloquial conversation, professional training and teaching experience were unnecessary. Former contact with native peoples was a significent prerequisite of each informant; many were recent arrivals in America — some were refugees — and in general they had little knowledge of the English language or of American ways of life. These informants — many of whom were women — proved

excellent for their jobs, adding color to the work which only natives of the respective areas can supply.

Area Staff

A competent language staff was a first requisite of an institution; in general it was by far the most important. But the area staff, more easily supplied than the language staff, likewise proved highly important to a well balanced, effective program. A recognized need for teachers well acquainted in the respective regions, and likewise familiar with customs and temperaments of the native peoples brought about the shifting of teachers from various university departments into area-language work. For example, in one institution a Finnish cello instructor, who lived in Finland until recently, was borrowed from the university school of music for part-time work in the Finnish area. In addition to regular faculty, participating universities secured for specialized area work teachers from other American schools, as well as many individual natives of various foreign areas. These included naturalized American citizens established in trades and professions, recently arrived immigrants and refugees, and visiting European university professors. Through their ability to present the native point of view and to integrate area and language work, these selections proved most valuable.

Area study does not in any sense ignore the contents and the discipline of well-established subject-matter fields; on the contrary, it could not function without drawing heavily from traditional courses for content, organization, and techniques of presentation. Historians and geographers in particular contribute much to the program, often playing the balance-wheel roll in keeping the work on an even level. The nature of their part in the program calls for a semi-traditional approach, proceeding along lines of their respective well-established disciplines. Other area teachers, however, frequently find it necessary to depart from tried disciplines and to proceed along experimental lines in an effort to bridge gaps between two or more distinct fields of study, such as government, sociology, and ethnography. Subject-matter specialists, therefore, occupy excellent positions for lending organization and coordination to the entire program.

In addition to the regular area staff, visiting lecturers add much to the training program. Prominent authorities on various phases of the war areas — foreign correspondents, free-lance writers, retired foreign diplomats, recently arrived immigrants, political science experts, geographers, et al — provide a varied series of lectures and discussion periods, at intervals of about a month.

Coordinators

The success of a program so complicated, so new, and so experimental in nature as this depends to a great extent upon successful coordination, much of which the War Department leaves to each participating university. Varying in size and organization from one university to another, each coordinating staff consists essentially of a director and a number of assistants (usually part-time from the university's regular instructional staff) together with clerical help. Upon them falls the responsibility of coordinating the work within the academic part of the program and also of keeping the local unit in line with the ever changing

plans at Army headquarters. A good director of educational programs for the Armed forces at a given university must be a diplomat, an administrator, and a teacher, all in one. His job requires tact, judgment, and ability to make decisions; in addition he must have a loyal, cooperative, efficient staff. He occupies the key position in the entire program.

Choice of Selectees

Obviously, a program calling for such exacting results in so short a time can succeed only if trainees possess superior intelligence, language aptitude far above average, and broad background acquired through reading, systematic study, or travel. Thus, the Army uses great care in selecting trainees for this work, accepting only young men with high I. Q. rating, good emotional balance, for the most part college or university background, and other "officer qualities." Proficiency in at least one language in addition to English is a first requisite. On meeting this requirement each selectee must choose an additional language in which to do his specialized work; this policy is based on the assumption that a knowledge of three languages should enable an Army man to perform his duties in his assigned area without facing any serious language difficulties. Language aptitude and proficiency alone, however, are not enough. The matter of acquiring a thorough acquaintance with geographical, historical, sociological, governmental, and political aspects of a particular foreign area concurrently with learning the language, further complicates and intensifies the work.

Academic Organization and Procedure

The experimental nature of area-language instruction necessitates close cooperation between the War Department and participating universities. Definite objectives were absolutely necessary from the beginning; but only a suggested plan of procedure appeared feasible at the start, the details of instruction developing as work progressed.

Objectives

In assigning area-language work to selected universities the War Department outlined specific aims of the program and gave a general procedure to be followed. Curriculum No. 71 (revised November, 1943) governing the program states that the objectives ". . . . are to impart to the trainee a command of the colloquial spoken form of the language and to give the trainee a sound knowledge of the area in which the language is used." Recognizing a need for a marked degree of freedom on the part of each participating university the regulations state further that the original plan was revised ". . . . in order to allow participating institutions a greater degree of flexibility in program planning and in utilization of their faculty personnel." Thus, academic organization and procedure vary widely from one university to another; yet in a broad sense the governing regulations insure a high degree of uniformity insofar as material covered and final results are concerned.

Schedule And Process

A definite time schedule was one of the early requirements of this program. Some idea of the minimum time re-

quired for learning a language resulted from earlier experimentation with the adopted method; and the results of these experiments served as a basis for the time schedule which the War Department adopted for uniform use in the training program.

Language

The plan prescribed by the War Department calls for a weekly schedule of twenty-five class hours, continuous over a period of nine months. Sixty per cent, or fifteen class hours a week, is assigned to language; and a much greater proportion of the trainees's time outside the class-room goes to language than to other academic work. The problem of acquiring proficiency in an unfamiliar language within nine months would have appeared fantastic to most individuals a few month ago. Indeed, it still appears fantastic to many who think of language as a four-year college course. But, since emphasis falls heaviest on the colloquial *spoken* form, the task is considerably less arduous for the trainee than that of mastering both written and oral forms. But even so, it is quite exacting and it requires good background in and aptitude for language.

Dominant emphasis on the colloquial *spoken* form runs as a theme throughout the language training. The plan does not ignore the written form of the language, but it is not an objective *per se*. The oral form remains in the fore ground, the written form being introduced wherever it proves most effective in implementing oral conversation. This varies greatly from one language to another. Trainees spend three-fourths of their language class time in drill sessions meeting in small groups where informants drill them in the kind of conversation in which they will be expected to engage with natives in performing their duties in assigned areas. Three times a week instructors, working in close cooperation with informants, meet with trainees in larger groups for the purpose of giving demonstrations and instructions in pronounciation, grammar, syntax, word formation, etc. An entire language group as a rule takes quarters together so as to encourage individuals to converse as much as possible in the respective language. Thus, the whole language program is so coordinated as to provide the trainee with every incentive to "live" the language outside as well as inside the class.

Area

One of the objectives of the area-language program is to give the trainee a sound knowledge of the area in which the language is used. In line with sound judgment and good pedigogical practice the regulations suggest strongly that ". . . . the approach to the study of the area should be from the general European of Asiatic area to the more specific and particularized region in which the individual language is commonly used," and further that ". . . . Military experience has shown that the ability to analyze and properly understand a situation arising in a foreign area is more important than the possession of a collection of facts concerning the area — which easily may prove to be irrevelant and out of date." Furthermore, the three designated categories of academic work; (1) geographical study, (2) historical study, and (3) the study of contemporary institutions and culture, appear to be logical choices. Each university must

exercise considerable freedom in determining the degree of participation of each respective academic field; but a weekly class time allotment of two hours to contemporary history — 1914 to the present — and eight hours to other area work is uniform throughout the program.

The course in contemporary history in most instances follows a somewhat traditional pattern, employing the lecture method. It is designed to give the trainee an understanding and appreciation of the scope and importance of the present war and to acquaint him with some of the events leading up to the war. The course is global in extent yet it seeks to focus attention on the major region, Europe or Asia, and in a limited way to deal with the respective small areas studied.

Area study *per se* gets eight class hours a week, approximately a third of the total. In this work participating universities must exercise a high degree of flexibility in organization and procedure because of wide variation in faculty personnel. The charge ". . . . to give the trainee a sound knowledge of the area in which the language is used" calls into play many academic fields — geography, history, economics, sociology, government, ethnography, anthropology, etc. — each making its contribution from factual material and style peculiar to its own discipline. Disciplines dealing with similar factual materials may vary widely in interpretation, organization, and presentation; thus, the collaboration of several fields in area study necessitates compromising on the part of all. The degree of skill with which each participant gleans pertinent facts and principles from his own field and fits them into the composite picture, determines the success of the study.

By virture of its concern with *all* elements of environment, geography holds a key position in area study; but under no conditions does geography dominate. Although some area staffs do not employ the services of a professional geographer, the well balanced program grounds area work on a geographical foundation, and carefully relates to that foundation the various elements of the areal composite. The professional geographer, or at least someone pursuing the lines of geographic discipline, is in excellent position to approach the study from " . . . the general European or Asiatic area to the more specific and particularized region . . . ." by providing a systematic, continental geographical study, somewhat of the traditional type, followed by an intensive study of the respective area.

In most institutions the historical and geographical phases of area training fall to professionals in those respective fields. But the third academic category, contemporary institutions and culture, cuts across several academic fields; for this reason it presents the most difficult problems encountered in area study, varying with areas and with institutions and involving much experimental work. Designed to equip the trainee with comprehension sufficient to give poise and assurance on entering his military duties, the task naturally involves careful consideration of habits and customs of native peoples as well as some of the broader aspects of life in the respective areas. Natives make valuable area instructors, especially if they are experienced teachers. Ability to present matters from the point of view of the

inhabitants with whom the trainees will be dealing, and to combine language with area study give them a distinct advantage over American teachers unfamiliar with conditions in the foreign areas.

Outlook

This Army experiment in area-language training is difficult to evaluate. Man-power shortages and changes in military plans have drawn many trainees out of area-language service into other lines of duty where this training is not utilized. But many now are performing services in line with their specialized training where all their facilities as area-language experts are drawn to the fore. In all probability they are giving good accounts of themselves, measuring up well to every expectation. Certainly no finer, more brilliant, more capable group of young men ever assembled in a university classroom; their records in training justify full confidence that they will execute successfully the service for which this program proposes to equip them.

Education, particularly business education, will watch with interest this training experiment. When the smoke of battle clears and American big business again spreads to the four corners of the world, this area-language system may be the answer to a long-felt need for systematic training of business representatives in foreign fields.

In the past few years important mines of the strategic metals tungsten and antimony, have been developed at Stibnite in Valley County in the mountains of west-central Idaho. Most of our imports of both metals in pre-war years came from China.

The United States Board *of* Geographical Names

By H. F. RAUP

Board of Geographic Names, Washington, D. C.

MAPS, the most convenient tools in the teaching of geography, are seldom understood or appreciated by those who use them. Extensive research is necessary before an accurate map can be made. The most important map-making agencies in this country are those of the federal government: the United States Geological Survey, the Army Map Service of the Corps of Engineers, the Hydrographic Office of the Navy, the Coast and Geodetic Survey, the Army Air Forces, Forest Service, and others. Much of their cartographic work is never seen by the general public, since it is specially planned and designed for the needs of the agency. The numerous maps published by the Hydrographic Office are used by navigators, while those of the Army Map Service are used for military and aviation purposes. Each agency is responsible for the compilation of maps which are particularly needed in its own field. The Forest Service of the Department of Agriculture, for example, compiles maps of the national forests for use by fire-fighters, forest surveyors, and mountaineers, while the Division of Geography and Cartography of the Department of State prepares maps of the boundaries of foreign nations, political divisions, and the like.

In order to avoid confusion of nomenclature on maps published by government agencies, President Harrison issued an executive order in 1890 which established a board composed of interested representatives of the various mapping agencies. The duties of this group were concerned with the unification of the spelling of names which appeared on government maps, the correct definition and delimitation of the locations of places, and related activities. Originally known as the United States Board on Geographic Names, it became the United States Geographic Board in 1906, and the United States Board on Geographical Names in 1935. The Board is now under the Department of the Interior, where its research work is performed by the Division of Geography.

The settlement of place-name problems, at first glance, would appear to offer no serious obstacles to the cartographer, but a misspelled name on a map often produces resentment and protests from old-time residents. Incorrect selection of names, or names in error on maps of foreign areas, may have disastrous results in war time when military and naval operations depend upon accuracy of maps for their successful completion. Examples can be cited in which inaccurate spelling of a name, or incorrect location of a place name have decided the course of military events.

In compiling maps of the United

States, cartographers, historians, and geographers frequently disagree on the choice of spelling of a name. The arguments may involve the selection of an appropriate name for a major feature, as Mount Rainier or the Snake River Canyon. Mount Rainier was named in 1792 by George Vancouver, to honor a Rear Admiral of the British Navy. Although this name is of long use, the matter has been agitated for more than a half-century, with proposals to change the name of the mountain to Mount Tacoma, Mount Lady Washington, and others. The original name, however, gained currency throughout the country after the establishment of the Mount Rainier National Park.

Names of minor features are often in dispute. The evolution of the name Perche Creek in Randolph and Boone counties, Missouri, is an interesting sidelight on the American settler's treatment of names stemming from foreign-language origins. The stream takes its course through the bluffs along the Missouri River. The early French explorers in the region selected a descriptive name, Roche Percée. Kentuckians and others who eventually settled along the stream used various forms of the French name: Split Rock Creek, Rock River, Roche River, Roche à Pierce, Roche Percée Creek, Roche Perche, and numerous others, with and without accents. In recent years, local residents have used the form Perche Creek, a name almost wholly unrelated to the original French name and totally different in meaning. But Perche Creek is the name by which the stream is known, and that is its present form for use on federal maps.

The Board may recommend new names for places or features, but it usually acts on names which are already in use and which may be in dispute. When a problem is submitted for consideration, the research staff determines what name is in local use, the extent of the feature to which it is applied, and other necessary information. If the place in question is within the United States or its territories, the opinions of well-informed local residents are sought. The information thus obtained is weighed, and the name is checked on all available map sources and printed records. For this purpose, the Board has a collection of about 75,000 maps and 10,000 books. A brief history of the name or names in question is then worked out, showing the changes which have occurred since it was first in use. A trained researcher who is familiar with geographical features and terminology locates the correct geographical coordinates of the place, and prepares a description of the feature. On the basis of the evidence gathered, a name is then selected which appears to have widest currency and most acceptable form, and a recommendation for approval by the Board may be made. Particularly difficult name problems are considered by an Advisory Committee, whose members are representatives of other interested government agencies. After a name has been approved, it is official for the use of all government agencies.

Among the most troublesome American names are those of early settlers and local family names. The spelling of these names may change over a period of many years, and frequently the local residents are unaware of the correct spelling of the family name. Research on place names of this type

requires the services of a trained historian, who must make extensive use of biographical material assembled in the Library of Congress and elsewhere. A recent investigation of the name of the town of Troup, Texas, indicated that it had been named in honor of a governor of the state, yet for many years the town name was spelled Troupe, possibly as a matter of spite on the part of a local resident who disliked the political views of the governor. For two decades the local name was Troupe, but between 1900 and 1905 the townspeople made a concerted effort to correct the error. The move was successful, but the name of Troupe was so well established in records that it sometimes appears today with the final e, instead of in its official and approved form, Troup.

Another problem in place-name research is the establishment of the correct designation, or generic part of the name, which may have different connotations in different parts of the United States. A stream which may be known as a "creek" in one part of the country may be known as a river in a different section. Here, as in the problem of the spelling of the specific part of the name, the Board attempts to follow local use as far as possible. A related problem concerns the definition of the extent of the feature named. Few explorers and settlers who gave the names to our maps indicated the exact limits to which they intended the name to apply. Local opinion may differ in establishing the length of a stream, the location of the summit of a mountain, or the full length of a mountain range. Unless differences of opinion can be reconciled, our maps will continue to appear in a confused state, with overlapping features and inadequate definition of geographical features.

Occasionally the Board is asked to consider problems which involve the duplication of names. An example will make the matter clear. Within the Colville National Forest, Washington, are two mountains, two creeks, a valley, a lake, a small community, and a guard station, all bearing the name of Aeneas. The origin of the name is obscure, but apparently it was the name of a well-known Indian of the 1870's. It is possible that he bore the French name, Ignace, which was corrupted by English settlers to Aeneas. If the features bearing this common name were at some distance from each other, there would be no problem, but they all lie within a radius of 15 miles. This duplication of name may cause serious confusion in locating forest fires quickly and may result in added expense, delay in fighting the fire, and eventual loss of life. After a thorough study of the problem, investigation of local nomenclature in the area, and due consideration, the Board will recommend a solution.

As an aid in achieving uniformity in foreign names on maps and in publications of United States government agencies, the Board has devised rules for guidance, systems of transliteration for names which appear in non-Latin alphabets such as Russian and Greek, and systems of transcription for non-alphatbetic languages. In general, foreign names approved by the Board are those which appear on recent official maps or in census reports, postal guides, or other publications of the nation concerned. The foreign sources, however, may vary widely in their handling of place names. For example, one recent official Netherlands

source uses the name Tandjoeng (point) Pemalang for a promotory on the northern coast of Java; other official sources use the name Oedjoeng (hook) Pemalang for the same feature. A third source uses the Dutch form, Hoek van Pemalang. In such cases, it is necessary to evaluate the reliability of the various source materials and, in the light of the geographic characteristics of the feature, to select the most appropriate name.

The British organization which parallels the Board on Geographical Names is known as the Permanent Committee on Geographical Names for British Official Use, organized in 1919. Canadian place names are approved by the Canadian Geographic Board. In general, the approved names of each organization tend to be accepted by the others. In the latter part of the 19th century, under the influence of the mapping activities of the British Admiralty Office, most generic parts of foreign names were translated into English. Straat Makassar, for example, became Makassar Strait on navigation charts. This tendency to translate foreign generic terms continued until the beginning of the last decade, but practical difficulties of accurate translation were so great that a reversal of the trend occurred. At present, the Board's practice is to use English (translated) generic terms for bodies of water and other features which are common to two or more major territorial divisions in which the official languages differ (e.g., Danube River). Otherwise, the native generic is used without translation. If a conventional name is commonly recognized it is preferred above less well known native names (Red Sea.)

During the war, the activities of the Board are almost entirely directed toward foreign place-name problems presented by the armed forces and war agencies. This work has required a greatly expanded working force. Upon the return to peace-time operations, domestic name problems will comprise the most important part of the Board's work. Since its establishment, approximately 40,000 names, both domestic and foreign, have been approved for official use, and the files contain data on many thousands of names on which further research has been done. Gradually, through the efforts of this and other government organizations, the confusion in geographical names is being reduced and the work of the educator is simplified in the classroom and study hall.

Ask *the* Geographer

By GRANT E. FINCH
State Teachers College, Danbury, Conn.

THE importance of the services rendered by specialists in the various sciences is fully recognized in the fields of war and peacetime industry but many geographers feel that equal recognition is not extended to their work. Since geography has close contacts with so many physical and social sciences in its broad field, and since its findings apply so vitally to world conditions, it would seem reasonable to expect that the services of geographical experts would be in great demand. Actually members of vocations, even where the relation to geography is especially close, such as the farmer, fail to a large extent to avail themselves of the geographer's services. That this is true in the United States we may see by citing an example.

The case in point is the experience of the homesteader farmer in our Great Plains region during the past 35 years or so. In that section an annual rainfall of only 10-15 inches except in favored spots makes agriculture a precarious occupation. When the farmer is fortunate enough to get rain at just the right time for his growing crops he may have a bountiful yield. Likewise he may prosper during the wet years of the rainfall cycle. In 1944, when both the period of the cycle and wartime prices favored him, his profits were nothing less than phenomenal, so much so that many a farmer received for his wheat crop as much as the value of his entire investment — even in some instances, according to a banker who should know, twice as much. Such unusual profits naturally lead to unwarranted expansion of farming operations, especially by the farmers not familiar with the principles of rainfall variations and soil treatment in regions of marginal rainfall. Sooner or later the wet years of the cycle are succeeded by dry ones — sometimes four or five in a row — when crop yields are so scanty that the farmer "cannot get his seed back." After a few such years everything the farmer owns is plastered with mortgages, after which comes bankruptcy and even abandonment of large areas once under the plow. Native grasses disappear, soils blow away and dustbowls form, making the resumption of cultivation difficult if not impossible.

It would be unreasonable to expect the average "honyaker" who homesteaded the public domain to have wisdom enough to go to the geographer for advice before risking his all in so precarious a venture, but the same cannot be said of the United States Department of the Interior. It could have had the help of climatic and soil experts in framing an intelligent land policy before throwing the public lands open to settlement. It could easily have made the two-fold classification of agricultural lands and grazing lands, allowing only the former to be homesteaded and reserving the latter for grazing by the stockman. What

the Department did was to throw open to settlement all these lands without any classification, leaving it to the homesteader to make his location at his own risk. Thousands flocked in, selecting their homesteads without, for the most part, either knowledge or experience. Such limited help as they did have came from land agents or locators who collected a fee in each case of perhaps $50, and who as a rule were unqualified to make an intelligent selection. A large part of these farmers failed with much attendant hardship and suffering. In their attempts at cultivation they also wrought serious injury to grazing lands through destruction of the native grasses. Such large scale failure must be charged primarily to the absence of an intelligent public land policy on the part of our Government. The following ironic saying of the unfortunate homesteaders is illuminating: "A homestead is a bet by Uncle Sam of 320 acres of land that he can starve you to death."

A practical plan for classification of our Western public lands would not seem difficult. Some of the important points in such a plan are:

1. Rainfall records — amount — seasonal distribution
2. Evaporation — least on north-facing slopes
3. Altitude — heavier rainfall on more elevated lands
4. Direction of slope — more rainfall on westward-facing slopes
5. Character of soil — unfavorable kinds: sand, gravel, gumbo
6. Depth of soil — deep soil necessary as a reservoir for moisture

Geographers and related experts familiar with these factors of climate and soil, could have classified our public lands prior to their opening and thus have prevented much human suffering, also material damage to the land.

As an offset to the foregoing indictment of our national officials acknowledgment should be made of some examples of more enlightened policies. During the past ten years we have had a National Resources Board making a survey of the country's physical resources with studies of their best utilization. This admirable undertaking, which has the unqualified approval of geographers and all scientists, has however had its annual appropriation withheld recently by Congress, thus showing that scientific precedures in matters of public concern still have their opponents. However some progress has been made in spite of opposition. Large areas of grazing lands have been purchased from their owners and restored to the public domain to be leased to stockmen for a fixed grazing fee. These lands although much damaged already by man's mismanagement, are now being brought back to use under policy of reseeding where native grasses have been destroyed and by protection from overgrazing through systematic supervision. Another progressive step has been the withdrawal from homesteading of the entire public domain now remaining until complete classification data are available.

Not only in domestic matters has the geographer's advice been neglected; instances of the same kind may be found in the management of world affairs. An example of this may be seen the way new nations were created and national boundaries fixed at the treaty of Versailles of 1919. Among the new nations created by this treaty were the three Baltic republics Estonia, Latvia and Lithuania. Though tiny and weak in comparison

to mighty Russia they possessed a great strategic advantage over that country in having the cities of Riga, Libeau and Memel, with their harbors and railroad terminals, thus shutting Russia off from military and commercial access to Western Europe through the Baltic Sea. A comparable case in the United States would be to make Boston, New York and Baltimore, each with a small area of contiguous territory, into independent states and thus shut off this nation from access to the Atlantic seaboard. One cannot imagine the people of the United States submitting to such amputations; and one can believe that had geographers had an effective voice at Versailles, no such states as the Baltic republics would have been created.

Mistakes fully as great were made at Versailles in fixing national boundaries. For example, the creation of the Polish Corridor, which separated East Prussia from the rest of Germany; also the creation of Czechoslovakia with the shoestring shape and the mountain axis, so that its citizens had to travel a part of the way through other countries in order to get from one end of the country to the other. Poland's eastern boundary was so drawn as to include a large White Russian population and at the same time its eastern frontier was lengthened and weakened defensively. It is reported that at least two prominent American geographers did object at Versailles to Czecho-slovakia's boundaries, though in vain.

The territorial adjustments in the Danubian countries should also be listed among the geographical mistakes made at Versailles and Saint Germain. The Danube region, forming a basin by means of its surrounding mountain wall and interior river system, constitutes a natural region if there ever was one. Man has further unified it by building cities at commercial centers and connecting them by a splendid network of age-old land and water transportation lines. Its prosperity depends on its unity and it should be organized politically as a unit. Instead it was divided up, after World War I, among seven different countries: Austria, Hungary, Czechoslovakia, Poland, Yugoslavia, Rumania and Italy. The 2-million city of Vienna, trade and cultural center, was left to starve because of the loss of its supporting territory. The old trade routes were disrupted — interrupted every few miles with new fronters — each with a double system of guards, customs officials and hostile tariffs. In the attempt to favor newly-created or enlarged states, hostile minority groups were included, such as the 3½ million Sudeten Germans in Czechoslovakia. The sequel to these geographic blunders was economic distress, political discontent and increasing danger of war. These troubled conditions contributed largely to Hitler's successes in the early part of World War II.

From all the evidence it seems undeniable that much of the political unrest and economic distress in Europe in the years before the present war was geographic in origin and might have been avoided, and the present war possibly prevented by a greater regard for geographic fairness and justice. This brings up the question now, with another world peace negotiation apparently near at hand: Will the warring nations show any more wisdom in planning the coming peace? Unless they do, we must expect, in another 25

years, a third and even more terrible world war.

One of the values of geographical training is the readiness which it gives its specialists to make prompt decisions because its principles furnish a basis for sound deductions. This readiness extends even to new problems, hence a geographer may be ready now with a number of suggestions for the new peace. Some of his conclusions on the vital questions of territorial adjustments might well be as follows:

(1) Let Estonia, Latvia and Lithuania be associated republics within the USSR

(2) Restore the White Russian portion of eastern Poland to Russia

(3) Restoration of the natural unity of the Danube Basin. Such a unity might be federative if no stronger bond is feasible.

Passing from these home and world topics to some points on the conduct of the present war, we are glad to find here numerous signs of regard for the advice of the geographer. He is asked to advise our commanders when their offensive operations may best be undertaken, so as for example, to avoid the mud of annual wet seasons, such as are caused by the monsoon rains of Burma or the winter rains of North Africa and Italy. He gives information regarding the terrain where an invasion is planned: location, distances, topography, temperature, water supply, drainage and roads. He advises about the kind of clothing needed — heavy or light according to the climate — and preventive measures needed to guard against climatic diseases. Hitler could certainly bear witness to the disastrous effect of winter cold and spring mud on his armies in Russia. One wonders why he didn't consult his geographers.[1]

In the preparatory training of our soldiers the geographer is competent to advise regarding the best locations for camps and training fields. So far as possible soldiers should be given their training under climatic and topographic conditions similar to those where they are to be sent. This would mean our northern states for campaigns in northern Europe, California for service in Italy and for the Pacific areas training might be given in Hawaii, New Caledonia and Australia. Our southwestern states offer fairly satisfactory training fields for African service. All this information is welcomed also by the families of the trainees. They naturally want to know the character of the surroundings where their boys are located and the geographer can do a valuable service in enlightening them.

One of the most important educational features of the soldier's training is his study of maps since the understanding and use of these aids is to be of vital value to him when he is sent to the front. So many maps are in use both for training and active service that publishers and mapmakers are taxed to the limit to meet the demand for globes, atlases and a wide veriety of special maps. Many new types of maps are required, among them topographic maps and the new global maps for airmen. We call the topographic maps *new* because they are now made by aerial photography with a speed and minuteness of detail hitherto un-

1 A few years ago a professor of English at the University of Pittsburgh, who was planning to go with his family to Tokio on a 5-year assignment, asked a geographer about the kind of clothing they would need there. He was told that Tokio's climate resembles that of St. Louis and that his family would need galoshes, warm gloves and heavy wraps for winter and very light garments for summer.

dreamed of. The total area thus mapped since the beginning of the war aggregates millions of square miles. Such maps had been made and used by the AAA for several years before the war, but not to any such extent as at present.

Maps are the basis of grand strategy involving continents, oceans and indeed the globe. They are also essential in the case of limited military objectives, where every hilltop, stream or trail may be vitally important. Maps are no less important for our naval forces than for our land fighters. Most important of all is their use to our airmen. All our fighters, whether on land or sea, under the sea or in the air, must be well trained to make full use of these aids and in this training the help of the geographer is indispensable.

A certain amount of map education is also helpful to the general reader. The daily and Sunday papers are now making use of maps to a greater extent than ever before. Periodicals, such as FORTUNE magazine for example, are publishing up-to-date maps which are remarkable for their visual appeal. American mapmakers are now tending to follow the admirable example of the French and Germans in suppressing irrelevant map detail in order to emphasize particular features.

One of the reasons why the general public does not look to the geographer more frequently, may be because he is not alert to his opportunities for service, which are really numerous. Among them are contributions to the press on matters of current geographical interest. These may be in the broad fields of war, diplomacy or politics or limited to local matters which have a geographical angle. Service clubs and other local organizations are usually interested in live topics of a geographical nature. Business men take an interest in any studies in their fields. The breadth of the geographic field, and the timeliness of much of its material, tend to stimulate contributions. The knowledge of the geographer concerning his home region makes him one of its most competent people to interpret it to its inhabitants — its points of strength and weakness along the lines which promote growth and prosperity. A good example of a regional survey well done by geographers and allied specialists is a largish volume, published some years ago by the American Geographical Society, entitled "New England's Prospect." Somewhere among all these possibilities the geographer should be able to find opportunities for service that may help to raise the professional importance of his field.

Some individuals think because the facts of geography are subject to frequent change, especially in time of war, that its findings are unreliable. It is true in many cases that the geographer finds in his attempts at generalizing, that some of the facts are at variance with others. Under such circumstances his conclusion is based on the weight of evidence and represents a tendency rather than an absolute principle. Even after making full allowance for contradictory data, there will still remain a solid core of principles, such as those relating to climate, soils, minerals and power — enough to substantiate geography's claim to be considered a science.

Worthwhile and reliable geographic thinking depends primarily on one's definition of geography. Most geographers are agreed on this one: Geography is the science which deals with

the inter-relations between man and his environment. It is a science because its core is an organized body of principles, arrived at inductively and applicable to numberless instances. A large section of the public still believes geography is an unorganized aggregation of facts with the chief emphasis on location, and that the chief requisite for a geographer is a good memory.[2] The geographer knows that the prime requisites are ability to form sound judgments from the available data and to reason from them to the right conclusion.

Clear thinking is also helped by keeping geography a separate subject instead of merging it in an unorganized fusion with history, civics and other social studies. Not only should this be done through the elementary grades, but geography should be taught as a solid subject in high school and college and university. When such a substantial geography program has been in operation for a few years, our National Office of Education can no longer say that we Americans are "illiterate" geographically. Neither will the geographer have occasion to complain that the public ignores his contributions.

2 A teacher who had abandoned separate courses in geography and history in favor of a fusion course in "Social Studies" described the geographical education of her students in this way: "We do not neglect geography. I have the students look up the location of all the places mentioned in every unit that we take up."

At the close of 1944 the Philippines and the lonely island of Wake were the only American owned territory not yet regained from the Japanese.

A Geographic Study *in* Urban Civilian Defense *and* Post-War Planning

By ALFRED H. MEYER
Department of Geography and Geology
*Valparaiso University**

THE United States Office of Civilian Defense defines civilian protection as "the mobilization, organization, and training of a force capable of rendering the most efficient service to the community in the limitation of the effects of enemy action, especially air raids."[1]

The defense control system recognizes three principal functions. One of these is "to keep the Commander supplied with a picture of the situation in the field."[2]

This would seem to call for a well organized and executed cartographic program, treated in a special government bulletin. Yet only a small map and a few scattering references to map work appear in the nearly three score defense bulletins which have been issued. Moreover, the defense bulletins seem to ignore completely the services which a geographer may render in a cartographic capacity. Seventeen college faculty classifications "of the types of persons in demand at the present time" include designated representatives from every liberal arts and science department, from engineers and physicists to historians and directors of dramatic groups.[3] But the geographer is not in the picture.

Neither does it appear from communications of defense coordinators of a dozen representative large cities, most of which have colleges or universities with geography departments, that geographers have participated responsibly in these cities in the defense mapping program. In the majority of cities, this responsibility seems to have been delegated to engineers; in one or another of the remaining cities, the mapping was in charge either of the state highway department, the city planning board, or the police department.

It is the purpose of this paper to direct attention to the kind of service which the geographer by reason of his special map and regional training may render to the civilian defense program. Incidentally, it also directs attention to the adaptability of this type of urban mapping and study to the post-war planning program. The community is Valparaiso, Indiana.

* The writer is indebted to the various members of the Valparaiso Civilian Defense Council, especially to N. S. Amstutz and to the author's class in cartography, for assistance in the mapping project.

1 Organization Outline for Local Defense Councils, U. S. Office of Civilian Defense, Washington, D. C.
2 "The Control System of the Citizens Defense Corps," U. S. Office of Civilian Defense.
3 "College and Universities and Civilian Defense," U. S. Office of Civilian Defense.

Site and Situation

Valparaiso is situated on the Valparaiso moraine, a hilly glacial deposit, about twenty-five miles southeast from the northwest corner of Indiana. It is the County Seat of Porter County with added educational and manufacturing functions.

The geographic significance of this urban community in relation to the national civilian defense program is at least fourfold:

1. It lies only fourteen miles from Lake Michigan, whose southerly projection brings about a concentration of west-bound traffic converging on Chicago.

2. It occupies a strategic position in being situated within only twenty-five miles of the nationally famous industrial Calumet district at the south end of metropolitan Chicago.

Its location here at a major gateway to greater Chicago makes it one of the most vital and perhaps one of the most vulnerable spots to defend. A virtual bee-hive of diverse industries, both heavy and light, the Calumet region has come to be one of the foremost steel manufacturing centers of the United States. Its extensively developed oil refineries add to the attractiveness of the Calumet target and make defense of the region all the more difficult and critical.

In a similar proximate position to the east of Valparaiso is another vital target, the Kingsbury Ordnance Plant, one of the largest in the country.

3. The chief industries of Valparaiso are unique in the type of metal, magnet, and mica defense products which they manufacture.

4. A fourth factor of Valparaiso's defense importance is its participation in war training programs. The Dodge Radio Institute and Valparaiso University offer accelerated training for the men now in service or preparing to enter service.

Importance of an Urban Defense Program

The present global war differs from earlier wars in the increased importance of the factor of surprise. The complexities introduced by novel offense strategies and their world-wide application for the first time have challenged the alertness and ingenuity of those who are engaged in protecting the civilian population against air raids. Thus total war has come to mean total defense.

In the present air-age where transcontinental and trans-oceanic flights are a matter of a few hours, all nations, including such militarily strong nations as the United States, are vulnerable to air attacks. Moreover, a globe brings out the significant fact that some inland positions need as much protection as the coastal, since an interior position may be even closer to enemy bases than are some of the coastal positions. Thus it behooves every community in our country to organize an adequate civilian defense program.

Such a program, first of all, calls for a map consciousness of the civilian defense administration. Here seems to be a fertile field for the functioning of geographers. Unless the geographic morphology of a community is cartographically conceived, unless each functional geographic unit is visualized in relation to every other unit so as to give a unified picture of the entire urban mosaic, there can be no adequate defense organization.

The map thus becomes the key base

for defense study and operations. Two maps were made of Valparaiso to illustrate the functioning of defense geography: (1) a morphological map of the city, featuring the several functional and defense units (2) a defense sector map showing, on a street-block base, details of buildings considered strategically important. Such factors relate to escape, refuge, communication, fire prevention, first aid, and the like.

Attention will first be directed to the structural layout of the city, to which will then be related the organization of defense.

Geographical Morphology

A study of the arrangement of the city's functional units directly from the map is, of course, the most effective way of grasping the pattern of urbanization. But several brief statements may serve to emphasize some of the features of functional distribution.

The commercial core of the city became established about the Court House square. Old Lincoln Highway, formerly U. S. 30, strongly attracted retail merchants whose establishments thus gave the core its east-west orientation.

Franklin Street, bounding the Court House square on the east, also assumed a prominent role in the historical development of the town. At its intersection with Lincolnway, on the north side, there was, until a few years ago, the terminus of the Gary Interurban Street Railway. Thus Lincolnway and Franklin became the transportational as well as commercial focal point of the County Seat of Porter County.

Outside the commercial core, business establishments occupy either sites along railroads or scattered positions within the residential sections. The former consist chiefly of such types of business as involve large storage space, and heavy and bulky commodities, such as coal, oil, lumber, and other building materials. At the Grand Trunk station these, together with several stores, form a small secondary commercial core near the north end of the city. The scattered business units elsewhere are for the most part small community grocery stores.

The main industries of Valparaiso and their importance to our national defense program have already been alluded to in the introduction. They are located characteristically next to the rail right-of-ways where they are in immediate contact with adequate transportation facilities.

Transportation facilities of Valparaiso are unusually adequate. Its four highways, its three railroads — the Pennsylvania, Grand Trunk, and Nickel Plate — and the frequent bus service of the several bus lines, reflect the influence of the city's geographic proximity to the Chicago metropolitan area to the northwest.

Valparaiso's residential morphology may be regionalized into three segments: (1) the central segment (between the Grand Trunk and Pennsylvania railroads), (2) the northern segment (north of the Grand Trunk), and (3) the southern segment from the Pennsylvania south.

Geographic Technique of Defense Mapping

Valparaiso is divided into three defense zones, each sub-divided into sectors, varying in number from five to eight. Single sector maps showing the basic street-block pattern are prepared, one for each warden. On this the warden enters the defense data of

his sector. Of the twenty-one sector maps, seventeen are drawn on a scale of seventy feet per inch. The other four, because of the larger areas and smaller population, are drawn on a scale of 140 feet per inch.

For the control center there is another map — the master map, 70 inches x 70 inches. This is a composite map on which have been entered the defense data appearing on the twenty-one sector maps. The master map is constructed on a sufficiently large scale (120 feet per inch) to show clearly all the symbol entries transferred to it from the individual sector maps. Its defense symbolism is classified under three categories: Basic Urban Morphology, featuring lot, block, sector, and zone boundaries; Functional Building Units and Warden's Posts and Strategic Defense Utilities. The map legend comprises the following items:

Basic Urban Morphology: Zone Boundary (outer line also city limits): sector boundary; zone letter, sector number, creek or ditch; railroad; street; alley; city block; lot line division; building (in perspective); brick or stone building.

Functional Building Units: Residence (number of stories); garage; fraternity, sorority, dormitory; school; church; hospital and fire station; doctor, dentist, nurse; factory, mill; railroad depot, freight house; water tank; lumber-coal yard; oil filling station, bulk station; drug store; store; auto sale; bank; miscellaneous (as noted.)

Wardens' Posts and Strategic Defense Utilities: Warden's post; telephone; street lamp; fire hydrant; sewer grating; manhole.

Since the successful operation of a civilian defense program depends partly upon the completeness and clarity of the defense map, care is taken that details can be quickly recognized. The zone and sector areas have contrasted color. The functional building units are with few exceptions represented by solid coloring, the brighter colors being used for distinguishing the more critical defense units. The problem of representing the many strategic defense utilities, such as individual telephones, street lights, fire hydrants, etc., was solved by the use of specially prepared rubber stamp symbols. Since such symbol markings must necessarily be small to avoid overcrowding, they are made more readily distinguishable by using a different color for each classification.

Summary

1. The geographic position of the community is studied in relation to the neighboring defense units considered of strategic importance.

2. A thorough inventory of geographic field data is basal to an effective defense program.

3. These data should be accurately recorded cartographically.

4. The urban data on the map should be classified functionally.

5. Since each functional area differs in its geographic set-up and therefore calls for a more or less specialized defense technique, it seems wise to consider regional morphological differences as well as number of people in delineating sector units. Thus the regional principle of geography finds a new application in the form of a civilian defense study.

6. The detailed morphological representation of real estate features, public utilities and other functional units constitute a working base for a city planning program after the war.

Teaching Geography *with* Globes

By THOMAS FRANK BARTON
Southern Illinois Normal University

A GLOBAL viewpoint is prerequisite for world understanding. Geographers have always appreciated this fact, but for the majority of American people it took a global war to shake them into functional awareness.

Teachers of geography know the importance of the globe. It is an irreplaceable tool in presenting a world perspective. Yet, before globes can be more widely and successfully used in the classroom, it seems that there are a number of obstacles to overcome. Some of these are: 1. the lack of funds with which to buy globes; 2. inability of teachers or administrators to select practical globes from the great variety of sizes and kinds now available as ornaments, teaching tools, and general use; and, 3. when a globe is available, a lack of accumulated knowledge and experience on the part of the teacher in knowing how to use it.

The first obstacle, the financial one, is not as serious now as it was a few years ago. Large hand-made globes are expensive to make and consequently are sold at higher prices. The same size globe made by machine, though not quite as accurate for detailed measurement and location makes a good teaching tool for precollege levels and can be had for half the price of hand-made ones. Because of the low cost of machine made globes, every child in the elementary school should have the thrill of working with one at his desk.

Moreover, have not most administrators a way of providing small sums of money for equipment when the demand by the public and teacher is great enough? The public today in many places is asking that a global viewpoint be taught in our public schools. Pupils come to class with more and more questions that can only be adequately answered with the use of a globe. For example, what is a great circle airplane route? Is the Pacific Ocean larger than all the land area of the earth? Is New Jersey east of the west coast of South America? Maps showing very large areas of the earth are inaccurate and often misleading. That more and better globes should be placed in the classroom is a statement of fact accepted by an increasing number of teachers and administrators on all levels of education, from the elementary through the college.

It is not the purpose of this paper to examine in detail the financial situation of schools and chart a course whereby administrators and teachers may reach a satisfactory solution and buy more globes. Such a problem is chiefly a local one. This article will be limited to the second obstacle that blocks the way to a better and greater use of globes; namely, the problem of "What globe should I buy?"

Which Globe Is Best?

In answering this question, a city superintendent or a one room rural

school teacher may well keep the following criteria in mind:

1. We need small, medium sized, and large globes.
2. We need physical and political globes.
3. We should have globes on which chalk can be used and others on which it shouldn't be used.
4. We need cradle and stand globes.
5. We should have more inexpensive than expensive globes.
6. We should have sturdy rather than flimsy globes.
7. We should have utility rather than "museum" globes.
8. We should have student rather than teacher globes.

The globe should not be purchased by the school to decorate the schoolroom or to be the teacher's personal possession. Pupils should be permitted to handle the globe and use it; otherwise, it shouldn't be in the classroom at all. Naturally, when a globe is handled and used, it will show wear; but, does not all other school equipment depreciate in value? It might be added that depreciation goes on whether an article is used or not. Flimsy globes are expensive at any price. Inexpensive globes may be machine made and yet sturdy.

Primary Level

Perhaps first on the list of globes for the primary level should be a twelve-inch, machine-made, political globe in a cradle holder. The small child finds it easier to turn the twelve-inch globe than he would the sixteen-inch one and, moreover, the cost is less. Since in the primary level the children are thinking in terms of broad generalizations, it matters little whether the gores fit perfectly. For this level, a machine-made globe may be purchased. These less perfect globes will come to about half the price of the hand-made ones on which the gores fit perfectly.

Having observed primary children around new globes and consulted primary teachers, I find that there seems to be little doubt but that the globe should be political. The pupils at this level ask political-locational questions such as "My uncle is in a camp in Georgia. Where is Georgia?" or "Where is New Guinea?" or "Where are Australia and Europe?" Most primary children will not be able to read and understand the physical globe symbols. However, should primary pupils be ready for the more advanced globe, the teacher can usually borrow one from the higher grades.

Second on the list should be a twenty or twenty-two inch, all-metal globe on a table-base or disc-base floor stand. This globe should rotate on its axis, should be supported by a double semi-meridian, and should be adjustable to any inclination. The double meridian support permits one to insert the chalk and draw straight lines or meridians between the north and south poles. By changing the inclination of the globe, any hemisphere may be viewed from a horizontal position. This all-metal globe with the land masses and water distinctly colored offers opportunities for pupil construction or class demonstrations and problem solving in socialized recitations. With chalk the pupils can trace their imaginary journeys to any part of the world. For example, on these journeys they can use different colored chalk for the many different types of transportation, and label the principle places visited.

In addition to the two globes mentioned, a primary teacher should have available six or eight-inch political globes on table stands and these globes should be tilted at an angle of twenty-three and one-half degrees. It would be ideal if each pupil could have a globe at his desk so that he could whirl and examine it. Two pupils could share one globe. With more than three children to a globe, the teaching efficiency appears to decrease rapidly. These small machine-made globes cost approximately three dollars each. They can be used by every grade in your school.

Intermediate Level

All of the globes suggested for the primary level may also be used in the intermediate grades. However, if only one globe can be purchased for the intermediate grades, it should be a sixteen-inch, physical-political one in a cradle holder. Intermediate pupils can use this large globe with greater ease both in and out of its cradle than can the primary children. They will be studying the physical environments of the world in addition to its political units. Pupils in the intermediate grades can be taught to visualize relief in terms of color symbols. On this globe, physical rather than political names are emphasized. Children can find not only where Bombay and Paris are located, but they also can visualize the relief on which they rest. Should political problems arise, the political boundaries are clearly visible, though subdued, to permit the physical nature of the globe to predominate. A genuine advantage of the sixteen-inch globe is that the scale is an even number, 500 miles to the inch.

The cradle holder of this sixteen-inch, physical-political globe should have a horizontal band surrounding the ball so that the sphere appears as though divided into two equal halfs. By moving the ball in the cradle, any two points on the earth's surface can be aligned to the horizontal band and the distance between the two points measured in terms of miles, degrees and time. This type of holder facilitates the solving of many aviation problems. Other cradle models are available and measuring stripes are provided, but these two objects are easily separated and the tape may not be available when needed. Not only does the band of the cradle furnish an ever present "tape," but it holds the sphere more securely. Some cradles are so low that there is a constant danger of the globes being dislodged and damaged.

Since this globe can be used in all the levels above the primary one, it should be an accurate hand-made one. It will come to approximately thirty dollars.

Second in importance to the physical-political globe is the all-metal slate globe discussed above for the Primary Level. Global projects and problems become increasingly important in the intermediate grades.

Next, or third in line, is the small six or eight-inch machine-made globe used in the primary level. This can also be effectively utilized by older pupils.

A fourth kind of globe, if the budget permits, should be a physical-political sixteen-inch one with a moveable meridian mounting. This globe should be on a disc-base floor stand with casters. The stand should be the adjustable type so that it may be lowered and raised. This type is excellent for

classroom demonstration or workshop use. It is easily moved from place to place in the room or from one room to another. It holds the globe in any desired fixed position. In large classes, one sixteen-inch globe is not enough. Rather than buying two sixteen-inch physical-political globes with the same mounting, select two different mountings, such as stand and cradle, thereby securing greater teaching possibilities.

Junior and Senior High School

The same globes used for the intermediate level may be used in high schools and colleges. In addition to the globes already mentioned, an administrator should add an air age globe for the high school level. An air age globe is a ball showing only the names of important places in the world. Cultural features such as latitude and longitude lines, and boundaries of continents, oceans, and nations are omitted. Such a globe helps in teaching the universal nature of air, the freedom of the air, and the universality of air transportation.

Above the intermediate level, by and large, it is not the type of globe which varies, but its use in helping demonstrate the subject matter taught. Of course, if the subject matter taught involves details, then the hand-made and more accurate globes are required.

From Globes to Maps

Since globes are bulky and small, it is impossible to show great detail on them. Consequently, we will always need maps. Teachers should help guide pupils from the use of the globe to the correct use of maps. One of the excellent tools now available for aiding in this transfer is a diagram or map of standard geographical terms shown on a composite landscape. One section of this diagram illustrates many landforms in color and three dimensions. The second section of the map contains photographs of natural phenomena. State and continental relief maps are essential. Today, some map companies have state and continental maps with the same relief coloring and symbols as the globes they sell. This mechanical improvement is of great aid in helping the child to transfer his knowledge of the globe to the map. In addition to the state map in which the school is located, several other state maps with different types of relief might be secured. Plaster models of relief features are also very useful.

Conservation *as a* Post-War Problem

By OTIS W. FREEMAN
Indiana University

WE Americans are engaged in a World War that is consuming natural resources at a rate never before equalled in history. We are not only feeding and supplying our own land, sea and air forces, but also under lend-lease have furnished enormous quantities of goods to our allies. War is the most destructive agency unleashed by man for the consumption of essential materials. We Americans, to the greatest possible extent, have mechanized our military establishment and by the lavish use of machines and explosives have saved the lives of many members of our armed forces. No one would suggest we should economize on machines and that flesh and blood be substituted for the products of industry, nevertheless it should be recognized that many of our resources are limited and that war is horribly destructive of natural resources as well as human life. As a necessary result of the huge production and use of resources like minerals, the exhaustion of known deposits of oil and certain metals has been hastened and the conservation problems of peace times thereby increased. To a considerable degree problems of forest and soil conservation, like those of minerals, are made worse by war. Educators as a class should recognize that conservation problems have been accelerated by the war and should be ready to support reform measures suggested by the technical experts.

Our continent when discovered and settled by Europeans was a new world of virgin forests, unused, fertile soil, rich mineral deposits and vast numbers of fish and game. Science and invention speeded up the process of utilization of the New World resources, and were so successfully applied that we attained an amazing production of goods. Our American high standard of living and social order rests upon the abundance of our natural resources. The exploitation of these resources has become so rapid as to result in a maladjustment with nature that must be remedied if our way of life is to continue and living standards not be reduced. Thinking men have for years forecast the need for an end to America's prodigal drawing on her resource capital. The World War has hastened the day of reckoning and methods must be consummated forthwith for the conservation of our vanishing resources.

Any fisherman knows when the supply of fish has become depleted. The fish are fewer in number in their usual haunts, the average size of the fish caught is smaller, and one must try deeper and more remote waters for members of the elusive finy tribe. Likewise as the resources of a country are developed, the miner and the oilman tend to find fewer new deposits

than usual, and those found are usually smaller or of lower grade; in addition operators have to penetrate to increased depths and go to more remote regions to discover needed lodes of ore and producing oil sands. Similarly the lumberman has proceeded from the more accessible to the more remote forests, from easily logged and virgin timber of the best quality to that which is less desirable in all ways. With the exhaustion of the best and most accessible resources, the tendency is to turn to those of lower class and by technological improvements make it possible to exploit the lower grade material and supply the demands of consumers and still make a profit. Other general conservation measures consist of the saving of scrap and materials formerly wasted, and the use of substitutes. Imports from other regions may for a time help to lessen the rate of depletion of domestic supplies of certain resources.

Any thoughtful citizen can find evidence of waste and needless destruction of natural resources almost anywhere in our country, but among the most common complaits are:

(1) Erosion and depletion of soil.

(2) Waste in mining and use of minerals.

(3) Loss of timber from forest fires, inefficient use and other causes.

(4) Decrease in carrying capacity of grasslands from overgrazing.

(5) Decline in water supplies and pollution of inland waters.

(6) Depletion of fisheries and wildlife.

(7) Increase in flood damage.

(8) Injury to scenic and recreational areas.

Sometimes, through ignorance, land "improvements" have done more harm than good, for example; the irrigation of land containing too much alkali for most crops, the clearing of forests from steep hills and poor sandy plains, or the drainage of marshland whose soil is too thin and infertile for farming. Investigation before rather than after such developments could prevent the failures and financial losses. Scientists already possess the information needed for the proper and efficient use of resources. Here the educator can have a most valuable part in helping to transplant the ideas of the scientists on conservation into the minds of the public, especially that of the students, the future citizens of our nation. As a first step in this direction, some states like Wisconsin and numerous school system all over the United States, require the teaching of conservation, and in many more courses of study teachers are urged, even if not required, to teach conservation. In order for conservation to be taught so that the principles will have a genuine meaning to the pupils, the teachers themselves should have a better preparation in and understanding of the subject. This could in large measure be accomplished by summer sessions, teacher institutes and extension courses, or by correspondence work and assigned readings. It should always be remembered that the place to study conservation is in the field, and for a topic like soil erosion class work should be supplemented by field trips if at all possible.

Minerals

Under the exigencies of war the expense of materials is less important than to have the product available when needed. To stimulate production of strategic materials our govern-

ment has constructed huge plants that make aviation gasolene, synthetic rubber, aluminum, magnesium, etc. After construction the plants were customarily operated by private corporations. Government agencies also spent much time and money in a search for needed minerals like some of the ferroalloy metals of which the United States never had a sufficiency. Tungsten, chromium, nickel, cobalt, vanadium and beryllium are metals used for tools, armor, munitions and other kinds of steel for which special search has been made. In one case the government spent around $15,000,000 in developing a large deposit of chromite, only to abandon the project after a few months of operation because the Mediterranean had been cleared of the enemy and it was possible to import chrome ore from Turkey cheaper than it could be extracted in this country. However, it seems probable that some mines of chromite, tungsten or other ferroalloy metals developed under the urge of war necessities, will continue in operation during ordinary times. That this expectation is reasonable can be shown by examples from World War One. Magnesite used for furnace linings in iron and steel works before the first World War, had been imported from Europe. When the supply was cut off, careful search resulted in finding very large deposits in northeastern Washington that could supply the requisite amounts of this material. Potash was another mineral also imported from Europe of which in the last decade sufficient resources have been developed in California and New Mexico to meet our needs. Without the shutting off of imports of these minerals it is unlikely that either magnesite or potash would have been developed to their present extent. However, unless a mineral occurs within the confines of the United States, its domestic production is impossible no matter how careful explorations are made to find it. Thus extensive prospecting has been done for tin in this country unfortunately without favorable results.

The most notable expansion in production of a metal brought about by World War Two is that of magnesium. The first output of magnesium metal was in 1915, from brines pumped from underground in Michigan, and the industry never exceeded a few million pounds of metal annually until large scale war preparations began. The output of magnesium in 1940 was 12,521,726 pounds, in 1941 (32,589,052 pounds), a gain of 682 per cent. In 1942 the output was 97,925,684 pounds, a gain of 200 per cent over 1941, and further large gains were made in 1943 to around 400,000,000 pounds annually. Magnesium is now made from a rock, dolomite, various deposits of magnesium salts, and from sea water in addition to that made from brine. Magnesium is used in alloy structural products, especially for aircraft, as a substitute for alumium, and in pyrotechnics.

The demands of the aircraft industry and other military uses also caused a large increase in output of aluminum from 206,280 tons in 1940 to 920,179 tons in 1943. New aluminum plants have been generally located at new sources of hydroelectricity in the Tennessee Valley and the Pacific Northwest. Known deposits of bauxite, the ore of aluminum, are nearing exhaustion in the United States, and our country must import most of its bauxite in the future, likely from the Guianas in South America, unless efforts to ex-

tract the metal from certain clays and lavas, now being attempted by newly built pilot plants, are successful. Unless aluminum can be profitably extracted from other ores than bauxite, the war by hastening the end of our high grade bauxite will harm the position of our country in reserves of aluminum. However, by stimulating magnesium output from sources that are nearly inexhaustible, the position of the United States in the field of light metals has been greatly improved, so the net result will be probably more helpful than harmful.

Regarding essential base metals like iron, copper, lead and zinc, the enormous war demands are using up known reserves of high grade ore at a much greater speed than normal. Moreover, a shortage of labor has prevented most mines from doing the usual amount of development work so that new reserves have not been found that equal those that have been mined. The result will not be helpful to the future production of these metals. So far as price is concerned the immediate future should see metals in great demand for reconstruction purposes and perhaps the probable resulting high prices may permit the mining of low grade deposits, and stimulate the perfection of metallurgical processes that will allow operation of mines that are submarginal at present — but this is a hope, not a certainty.

In the field of minerals it would seem highly desirable from the standpoint of conservation, to substitute inexhaustible resources for the exhaustible so far as possible. Examples of this would be earth pigments for white lead in paint, magnesium for aluminum, concrete and other non-metallics for iron in building constructions. Where the resources of some mineral are quite small and production is wholly inadequate for our needs, the accumulation of a stock pile is recommended and perhaps some restriction of production from domestic sources, so that such mines could supply our emergency necessities if imports were impossible during a future war.

An inventory of our mineral resources would seem to be the first step needed to determine the proper policies to be followed by the mineral producers and the degree of government regulation necessary, if any.

The petroleum industry is one in which our reserves are disappearing at an appalling rate. Even in peace times the United States consumed more petroleum products than all the rest of the world put together. During the war the Allied armies, navies and air forces required such quantities of oil that civilian consumption had to be restricted. Numerous forecasts have been made of an early exhaustion of our petroleum resources. On the other hand some authorities feel that new oil fields will be discovered, that better methods will extract more oil from known oil sands, and that oil shale, coal and plant waste can be used for sources of liquid fuels in the future. Nevertheless, even admitting that the claims of new fields and new sources are all true, there is such a limited supply of oil that it should be produced and used by the most efficient methods and waste carefully avoided. Our resources of coal are large and apparently will last much longer than our oil at present rates of production and consumption. The substitution of coal for oil wherever possible, rather than the reverse course as is so often done, would seem

to be in line with best conservation practice.

Soils and Grasslands

Regarding soils, in almost every section of the United States there is clear evidence of erosion, wrong use and depletion. Forests have been cleared and grasslands plowed in regions where the soil, relief and climate are such that the lands were never intended by nature for anything except the growing of trees and the grazing of livestock. Since our Nation was founded over a quarter a billion acres have been ruined or severely damaged by erosion, and water and wind erosion is becoming a serious problem on another three quarters of a billion acres of cultivated and grazing land. No intelligent person can look with equanimity on the annual destruction by erosion and depletion of the equivalent of thousands of farms. It is estimated that $1,000,000 per day would be required to replace the fertility lost unnecessarily from American farmlands. By care and improved methods most of the soil deterioration could be prevented. For over a century we have been mining our soil. Now with the end of cheap, virgin land we must rigorously conserve what remains of our soil resources if American living standards are to continue. The question must be answered whether individual "rights" or the most ultimate good to to the greatest number is to be the prime consideration. It seems to the writer obvious that the public as a whole has interests above any individual and that if a land owner is unable or unwilling to handle land without ruining it in a few years so it is useless to posterity, that he should be removed from his land and replaced by someone who would handle the farm without serious deterioration of its soil. Already there are laws requiring farmers to spray fruit trees, remove diseased trees and destroy weeds that might be the foci of infection for a neighborhood, and forbidding the starting of fires to clear lands in dry seasons of the year. No one should have an inherent "right" to allow a farm to be destroyed by erosion — rather he should be expected to pass the farm along to his successor in better condition than he received it.

War with its urge for large food production and guaranteed prices for grain leads to the cropping of submarginal lands. The plowing of semi-arid grassland may be followed by disastrous blowing away of the topsoil during subsequent dry years, as occurred in the "Dust Bowl" following World War One. In recent decades a great deal has been done to improve farm operations that will conserve our soil resources but still much remains to be accomplished. As our soil is the fundamental basis for American prosperity, its preservation is the outstanding post-war conservation problem.

Overgrazing has reduced the carrying capacity of the western ranges over one-half. It is estimated by scientists of the Carnegie Institution that originally the "open range" grasslands of the United States had a grazing capacity of 22,500,000 animal units (a unit is one cow or five sheep) and that as of 1936 the capacity of the range to supply adequate feed had been reduced to 10,800,000 units. Obviously the western grasslands must be rehabilitated if future generations are to have adequate sources of meat. By controlled grazing, planting of improved types of grasses, and selection of animal breeds best adapted to the

conditions, the carrying capacity of the ranges can be increased fifty per cent or more, and thus our supply of needed animal products coming from the range be at least maintained and possibly increased.

Forests

Forests, like minerals and soils, are depleted more rapidly during wartime than peacetime. Construction of training camps and the war industries have consumed great quantities of timber, and difficulties of importing wood products has increased the drain on American forests. Shortages of labor and governmental requirements encouraged the utilization of trees that were accessible and easy to log. This will increase expense of operations in the future. While serious inroads have been made into our timber resources and our tree covered land equals hardly half of the original extent of forests, we still possess sufficient land to grow all our requirements for wood products if it is handled efficiently. There are about half a billion acres of commercial forest land in the United States. One-fourth is owned by Federal or state agencies. About one-third is on farmers' woodlots, and the balance is controlled by lumbermen and corporations. During the present generation considerable has been accomplished for the preservation of our forests but more remains to be done. For example, timber sold from National Forests must be logged by methods that protect the young growth, lessens the fire hazard and insures an other crop from the forest in the near future. It seems to the author that private owners should be required to operate their timber lands in a similar way so that the forests would be handled like a crop for continuous production and not like a mine that produces but once. Nearly 17 billion cubic feet was cut or destroyed from American forests in 1943 and the saw timber removed was almost twice the amount of growth. Improvements have been made in late years in the more efficient use of wood, and it is obvious that by extending such methods of using woods more completely that our remaining forest resources will go much further.

Forests have multiple uses and proper management will permit numerous industries to work together in harmony. For example, besides supplying sawlogs and other forest products, a forest may have value for recreation by campers, fishermen and hunters. Sometimes groves of trees, like the redwoods of California, by serving as a tourists attraction bring in more income to a community than if logged off for timber. When properly controlled, grazing on open forest land injures the forest but little and is another ligitimate use. Forested mountains often are sources of water for power, irrigation and municipal supply. The conservation of our water resources and the prevention of many floods are directly connected with the preservation of American forests.

Postwar Problems

With the end of the war and the release of our fighting men, millions of jobs will be needed. Much labor can be usefully employed on projects that will conserve and revive our forests and eroded soils. These improvements together with swamp drainage, irrigation of arid lands, range improvement, flood control and power development, not only will provide jobs during construction, but also will support great

numbers of permanent residents after completion of the projects. Such constructive improvements will promote conservation of our natural resources and also support more people on improved living standards.

Outstanding problems of conservation must be solved in the postwar America if our country is to retain its social standards and national rank. Employment of returning soldiers in the conservation of forests, soils, inland waters and other resources will not only provide jobs for the present, but will permanently increase the power of our Nation and its capacity to support the population on acceptable American standards. We educators need to help develop a concept among the future citizens of the United States of trusteeship of national resources to replace that of personal "rights" under which so much of our original resources of minerals, plants, soils and wildlife have been seriously depleted. The damage has been great, but through conservation a large part of the injury can be remedied.

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EDITORIAL

Educational Problems *in* American Character

By CARL G. MILLER

A new book* by an Englishman purports to tell other Englishmen about the character of Americans. Among other points, it brings out that Americans fight well when they have to, but they don't like that sort of thing. They want to get it over with in good style and then withdraw from all thoughts of such activity. Many Europeans, on the other hand, can't afford to take that point of view. In the past at least, they have had to realize that soon there may be another war, that fighting is part of life and again it will be in order.

The point that Americans want to get their fighting over with and then turn completely to something else is well made. It is pretty close to the truth. The comparatively isolated position of this country has encouraged its development, and it leads one to note that every American is by nature something of an isolationist. Against this trait, he must make considerable conscious opposition if the country joins others in an effort to keep the peace.

And what has this got to do with education? The answer is that it presents still another problem for the schools to try to solve.

The first requirement is that we realize the condition that exists. In spite of all the developments in aviation, our country is so large and its distance from the world's hot spots is so great that it is easy for Americans to become or to remain provincial. The fact that this country has so much race prejudice indicates in itself that we have had little experience rubbing shoulders against people of other kinds. Unless educated away from it, Americans are likely to want to remain independent and self-sufficient. Even the soldiers who have been fighting hard in foreign lands can easily return home and forget what they fought for. Furthermore, it is clear that many never fully realized or cared much for what they were fighting. The country's plan forced them to fight.

Educators interested in promoting international-mindedness in Americans because they see that world cooperation is the best move to make for world peace, have a substantial problem then in character education. They have to arouse the interest of Americans in other peoples of the world; they have to show that world peace will come only by international effort; they have to demonstrate that the country's economics must be adjusted to that of other nations and cannot remain a walled-in independent unit; and they have to make it clear that all fighting is not forever done when this war is concluded.

Worth noting finally is that the last problem is one of the hardest. How can we promote just the right amount of the spirit of fight in the average American? No one wants him to be a swaggering militarist, and no one should want him to be a cringing "softie." The "golden mean" is what we should aim at. And that means a balanced mixture of education in the military as well as the arts of peace.

* D. W. Brogan, "The American Character," Alfred A. Knopf.

BOOK REVIEWS

Arithmetic For Young America. By Clark, Clark, Baldwin, Hoye, Schorling, Smith. World Book Co.

There are six volumes, one for each grade, from three to eight, inclusive. They average over 33 pp. each, a total of 2010 pages at a total cost of $5.92. This is too much arithmetic for grade pupils, twice as much as necessary. Being so bulky, it can not be very well organized. Pupils drivel along. Definite goals are avoided; units are not clear cut.

Yes, it is the usual traditional arithmetic of the last twenty-five years. But it is an improvement over the old Standard Service and has 400 fewer pages. If we accept the traditional arithmetic as a necessary evil, we can truthfully say that this latest edition of Dr. Clark's arithmetic is superbly done. The illustrations are beautiful and must afford children considerable relief and satisfaction. The workmanship throughout is typical of World Book Company's high quality.

While there is lack of close unit organization in the drill work of this series, there is definite progress in that direction. The 100 primary addition facts are recognized, as are the 100 subtraction facts, the 100 multiplication facts, and the 90 key short division facts. There is a justifiable emphasis on the four fundamental processes. The work in fractions, decimals, and measures is greatly simplified, although much of *useless* drill remains.

The problem work is of the traditional, non-functional type, although improved, simplified, and made more interesting. While missing the true purpose of problem work, it is not nearly as bad as in most current texts. The properly trained teacher could easily profit from some of the problem suggestions, although she would omit 90% of the actual problem work as presented.

For help on the 7th and 8th grade texts, Dr. Clark has called in junior high school specialists, Schorling and Smith. While defending the mental discipline purpose in their introduction, they largely forget it in the tasks set. The appreciation viewpoint, as advocated by the writer, prevails in much of the work of these grades — measurement, our number system, graphs, the geometry of design, mensuration, algebra. There is less insistence or drill mastery of everything undertaken, than formerly. Much of mathematics becomes interesting recreation, as it should. The eighth grade text goes a little further into geometry on an easy, interesting basis, and makes some appealing, indirect uses of trigonometry.

There is a recognition that arithmetic may be useful in business, and some help is given along this line.

All told, the changes are for the better. The writer should be pleased that his work and that of his students on what is useful in arithmetic is bearing fruit at last. There is still useless drill in fractions, decimals, and measures, but much less than formerly. The time should not be very distant when arithmetic texts are less than half as bulky, when drill work is limited to the useful, when real mastery is expected in the fundamentals, and when the problem work becomes truly functional.—GUY *M.* WILSON, Professor-Emeritus, Boston University, and Director of Instruction and Personnel Testing, Raytheon Manufacturing Company.

Costa Rican Life. By John and Mavis Biesanz. New York, Columbia University Press, 1944. XIII and 272 pages, $3.00.

Costa Rican Life, in its way, does for that small Central American country what *Middletown* did some years ago for the hinterland of the United States. The authors, Dr. and Mrs. Biesanz, went to Costa Rica on an exchange professorship at the University of Costa Rica. They found all the traditional Hollywood pictures of Latin America—barefoot peons asleep under cactus plants and glamorous

and flirtatious senoritas perpetually dancing rumbas — mere romantic illusions. They did find ordinary people living ordinary lives, middle-class men, women, and children. The author set out to learn how the people of Costa Rica earn their livings, choose their mates, educate their children, have fun, worship God, and run their little democracy. In order to gather their data, Dr. and Mrs. Biesanz lived with the people of Costa Rica—they went to weddings; they taught in the University; they shopped in the stores and at the markets; they went to dances; they attended church services; they talked to students, fruit venders, and beggars. Like its prototype, *Middletown*, *Costa Rican Life* is an intensely interesting human document. It is a compact and authentic sample of the actual life and culture of typical Latin Americans and, as such, should be useful to the increasing number among us who are attempting to understand the peoples of our own hemisphere. — WILLIAM P. SEARS, JR., New York University.

Climate Of Indiana. Stephen S. Visher, Indiana University Publications, Science Series No. 13, pp 511, Maps and graphs 492.

This is the most complete treatise on the climate and weather of a state, and represents the culmination of 25 years of active research by Dr. Visher. Indiana is so situated and so representative of a large portion of the United States that much of the material has value to a considerable part of the country. Educators will be interested in the book as a pioneer experiment in a complete treatment of a technical subject in clear, simple language that is both interesting and intelligible to readers and students who are not specialists in science. "Climate of Indiana" has set a high standard of popular presentation that deserves to be followed by authors in other states or regions.

The book considers temperatures, frosts, growing seasons, precipitation, droughts, floods, snowfall, sunshine, winds and other factors. For each topic detailed examples are given of the effect of the various factors on crops, industries and human activities. An interesting chapter is devoted to the weather to be expected on seven legal holidays. Topics not usually found in a volume on climate deal with the development of physiographic forms and the effect of weather on health. The influence of weather and climate on crops grown in Indiana receives detailed treatment by aid of many original maps and graphs. The use of numerous maps and graphs that help to make the information in the book readily available is a most commendable feature. "Climate of Indiana" should remain a standard reference work for many years.—OTIS W. FREEMAN.

Geography Of Latin America. Fred A. Carlson, Prentice-Hall, New York, Revised 1943. 566 pp, ill. and maps.

This standard college textbook covers the whole of South America plus Mexico, Central America and the West Indies. It is attractively bound and printed and is well illustrated with 175 maps and pictures. It is a valuable reference work in addition to being a sound textbook.

As a help to understanding by the student, the book starts with two background chapters on the cultural heritage and political evolution of Latin America. Then follows a general survey of South America and its economy, after which the countries of that continent are discussed individually commencing with Brazil. Besides describing the relief features, climate, resources and products of each country the author also treats of the people and their special problems and activities. Over 300 pages of text are spent on South America after which 130 pages are devoted to Central America, Mexico and the West Indies. The final three chapters cover (1) transportation that includes the Pan-American Highway, Airways and seaways, (2) commercial relations that emphasize Latin America as a source of raw materials and market for manufacturers from the United States, and (3) a summary that includes some attention to the probable future of Latin America, its relation to the rest of the world and the development of mutual good relations with the United States.

The index is adequate and the addition of a pronouncing list of selected place names is wisely done. A selected list of references is included at the close of each chapter. In the revision the latest avail-

able statistics are included along with figures for prewar years. This is desirable since if 1940 statistics only were used for foreign trade, the figures not being for a normal year would leave a false impression of the relative standing of the United States compared with other countries.—OTIS W. FREEMAN.

Pacific Ocean Handbook. Eliot G. Mears. 198 pp, 58 illustrations, maps. Appendices. James Ladd Delkin, Stanford University, Calif., 1944.

The *PACIFIC OCEAN HANDBOOK* is a very useful compendium of concise information about the pacific as an ocean, its shore lines, seaports and contained islands. In addition the sections on tides, winds, storms, currents, fogs, navigation, volcanoes, earthquakes, geomagnetism and sea water are appropo to the world as a whole and are not limited to the Pacific. The book was written for use by both military forces and civilians. Teachers wanting information about the Pacific area will find it informative and accurate. The type is small but legible, and the pocket size of the book makes it easy to carry.

From the standpoint of geography teachers it is regretable that space limitations precluded descriptions of the different races in the Pacific area and the relation of the inhabitants to their environment. However, those teachers interested will find that several of the War Background Studies issued by the Smithsonian Institution contain extensive information about the Polynesians, Micronesians, Melanesians, Malays, Filipinos and other Pacific races.

In both the text and the appendix there are many practical suggestions for members of the armed forces. Examples include; how to turn salt water into fresh water, sea food for the shipwrecked, food plants ant jungle pests of Pacific islands, and suggestions as to the effects of the weather on military operations. The appendix contains tables of areas in square kilometers, populations, airline and navigation distances, two pages of standard times in numerous localities, and official weights, measures and correncies used in the chief Pacific countries. A comprehensive index and numerous small maps help to make the information in the book clear and easy to find by the user.—OTIS W. FREEMAN.

Global Geography. George T. Renner and Associates. Thomas Y. Crowell Co., 1944, pp 728, maps and ill.

Global Geography was prepared by thirty geographers. It is both a valuable reference work for public school libraries and a textbook suited to beginning classes in higher institutions of learning. Each of the 35 chapters, with one exception, was prepared by a single writer, but careful editorial work by Dr. Renner has aided in tying together the diverse contributions into a unified whole. The book is divided into four parts. Part 1 describes the resource patterns and world affairs, and Part 2 geonomic problems with emphasis on conservation and strategic resources. Part 3 discusses geo-cultural problems of races, population distribution, urban geography and the use of current events. Part 4 includes a variety of topics of current geographic and political importance like; geography and war strategy, studies of Russia, Britain and Southeastern Europe, and geopolitics. While a few plates did not reproduce well, in general the book is well-printed and of attractive appearance. —OTIS W. FREEMAN.

Japan, A Geographical View. Guy-Harold Smith and others. American Geographical Society, New York, 1943, pp 104, map.

This study of Japan discusses the regions, physiography, climate, forests, agriculture, fisheries, minerals, industries and trade of that country. It is replete with information of much use to geographers, military leaders and others wanting the latest data about Japan. The book is not intended for children or for popular reading, but is a scientific treatise on the subject that teachers may profitably study.—OTIS W. FREEMAN.

Geopolitics In Principle And Practice. Russell H. Fifield and G. Etzel Pearcy, Ginn & Co., 1944, pp 204; maps 29.

This book on geopolitics was prepared for use by cadets enrolled in colleges under the AST program. While somewhat super-

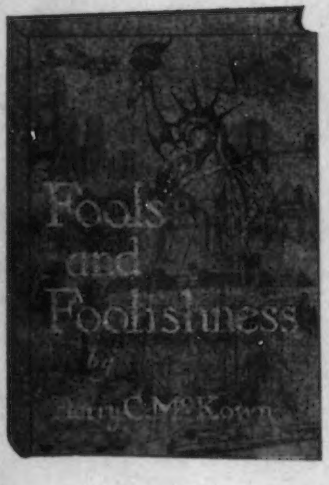
ficial in treatment and containing considerable historical material that is non-geographic, nevertheless the book will be valuable to teachers desiring an up-to-date and concise explanation of geopolitics and its application to war strategy. The book is divided into ten chapters; three describe geopolitics in principle and the remaining seven discuss geopolitics in practice. A chapter each is devoted to Germany, United States, Japan Soviet Union and the British Commonwealth-Empire. The original maps drawn by Pearcy add to the value of the book.—OTIS W. FREEMAN.

War Background Studies. Smithsonian Institution, Washington, D. C.

Twenty of these valuable pamphlets have been published to date. Each was prepared by an author who has lived in the countries and regions described and has become a specialist on his area. They were prepared for use by the military and other qualified persons. While many of the publications are out of print, those available are distributed gratis. When available they will be found very useful to geography teachers. Among those issued are studies on China, Japan, Indo-China, India, Burma, Polynesia, Philippines, and the island peoples of the western Pacific. Special attention is paid to the natural environments, and to the characteristics and customs of the peoples of the lands described so that a prospective visitor to a region can learn in advance what to expect. The pamphlets are of special value since it is difficult to secure accurate information elsewhere about some of the areas described.—OTIS W. FREEMAN.

Fools and Foolishness

By HARRY C. McKOWN



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